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A STUDY OF MARINE CORPS PERSONNEL APPRAISAL

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and
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by

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Major, United States Marine Corps

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Submitted in partial fulfillment of
the requirements for the degree of

MASTER OF SCIENCE
IN
MANAGEMENT (DATA PROCESSING)

United States Naval Postgraduate School
Monterey, California

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ABSTRACT

The problems of personnel appraisal are many in any organization. Appraisal systems have frequently been studied; recommendations almost invariably call for the replacement of the appraisal report form. However, this analysis of Marine Corps officer appraisal is restricted to use of the present report format and seeks means for improving officer evaluation within that constraint.

The study traces some recent history of reporting systems of the military, Marine Corps and otherwise. It investigates the rating scale, details the reporting scheme and considers the problematical results produced by rating officers. The current use and evaluation of the fitness report is outlined briefly and the application of the computer in standard-score evaluation of fitness reports is presented. The need for, and a means of, feedback to the rater is discussed.

Essentially, the conclusions of this report could represent a first-phase, no-risk endeavor toward better use of the current rating system.

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CHAPTER I

INTRODUCTION: THE PROBLEM AREA

"The moving finger writes;
And having writ, moves on;
Nor all your piety nor wit
Shall lure it back to cancel half a line
Nor all your tears wash out a word of
it,"

...Omar Khayyam

A Statement

Few topics have been so favored by attention as has personnel performance evaluation. If a reader does not confront, on the one hand, almost rampant treatments of the subject by the civilian community[1], he may witness, on the other hand, frequent effort to evaluate military personnel appraisal in his favorite military journals.

The appraisal program of no branch of service has escaped criticism, even within very recent months. General David W. Hiester, USA, publishing in Army stated lucidly: "Perhaps we (the U. S. Army) should take a fresh approach to see if we can significantly improve the validity of our reports as well as facilitate their administration."[2] General William C. Hall, USA, has said in the same publication:

> Something must be done before the current (efficiency reporting) form becomes useless because of inflation. A different one...should be devised. ...The only other solution I can think of is a moratorium on ratings. Limit reports to a single descriptive paragraph. A few years of this will create a demand for a rating system.[3]

[1]See, as example, J. P. Guilford, Psychometric Methods (New York: McGraw-Hill Book Company, Inc., 1954) which contains some 650 references for this and related subjects.

[2]David W. Hiester, "The Case for Level Raters." Army, XV (December, 1964), 40.

[3]General William C. Hall, "The Folly of Inflated Ratings," Army, XIII (April, 1963), 70.

It is stated in U. S. Naval Institute Proceedings, in a moment of obvious literary temperance by its authors: "That our (the services') present system (of appraisal) apparently has functioned adequately is more a testimony to the quality of our officer corps than to the reporting system."[4] Later, warming to their subject, the authors made this point:

> ...If because of the increasingly technical complexity of the military environment, reporting officers are becoming less able to evaluate performance accurately; and if "formology" (referring to the reporting format) is, at best, a mutable science, where, then does this find us? It finds us exactly where we are now, and where we have been subsequent to World War II--in a deplorable circle.[5]

And probably one of the most outspoken reviews of the dilemma is to be found in Armed Forces Management which, among other things, editorialized:

> ...we won't bother here to emasculate in great detail the silliness that an officer doesn't know why, at promotion time, he didn't make it; nor, at the outset, whether he was even in the running. It's apparently fruitless to note as well that he has no measuring point against which to gauge how well he has performed. The record he stands on is not the result of whether he won the ball game but of how well somebody thinks he played...thus, we find frequent charades where an Air Force officer, used to one promotion system, will evaluate the performance of an Army colonel, being judged by another system. That, in turn will be endorsed by a Navy captain familiar with a third routine--and it will all be forwarded by a civilian who has little familiarity with any of the three.[6]

[4]Major Harold K. Jones, Captain James L. Keating, and Lieutenant Commander George Positch, "Officer Appraisal in the Armed Forces," U. S. Naval Institute Proceedings, XCI (April, 1965), 76.

[5]Ibid., p. 77.

[6]C. W. Borklund, "Who Gets Promoted in this Zoo?", Armed Forces Management, XI (May, 1965), 11.

Marines, it is to be noted, can also select from many such remarks in their own publications. One example said

> ...selection boards have had their hands full in trying to pick the cream of the MarCor crop for promotion because the majority of reports are flowery but give little significant information as to the officer's particular ability and practical application.[7]

Earlier, Major General J. P. Berkeley, USMC, then Deputy Chief of Staff of the Marine Corps, Personnel, published while answering openly a query from a non-commissioned Marine concerning failure of selection to the next higher grade:

> ...Our fitness report system is lousy...the Board (selection) gets little help from fitness reports...Since a Board is composed of human beings we must admit they make mistakes now and then. However, over the years our experience has been that they bat about 90% and that is pretty damn good.[8]

Some History

The evidence seems clearly unfavorable to the several systems of military personnel evaluation currently in use. If this is the case, why then have there been no changes in the systems?

To be sure, history is fraught with changes to the reporting systems. The U. S. Navy, for instance, used some 48 different report formats between 1865 and 1956.[9]

The very recent history of the reporting system of the U. S. Army is a case study of itself. That organization had developed

[7]Lieutenant Colonel W. L. Traynor (ed.), "Officer Markings Get Special Attention," Marine Corps Gazette, XLVIII (November, 1964), 6.

[8]General James P. Berkeley, "Letter to a Staff NCO," Marine Corps Gazette, XLIV (May, 1960), 36.

[9]Harold K. Jones and others, loc. cit.

during the 1940's a "forced-choice" rating system.[10] Beset by difficulties, the "forced-choice" report was abandoned, and, in 1961, a new officer efficiency reporting technique was adopted. Army publications in mid-summer of that year were busy educating the marking officer corps to the origin and capability of the new report. One reported

> All officers--rated and raters--are more than little interested in a centralized evaluation system that plays so important a part in their professional lives. Every competent officer wants to be rated fairly and equitably, and usually develops a similar attitude towards his responsibility for rating the performance of others.
>
> The new system emerged partly out of hundreds of such discussions (as above) of a more formal kind, over the past several years. It is safe to say that every known theory and system of evaluating performance, every reasonable combination of rating methods, every strong and weak features of the old system, and every concept that might possibly have value in the new, has been a subject of study and purposeful decision.[11]

Appropriately secure in the knowledge that their new system was a product of keen professional competence, of experience, and of caution, the Army made its new system effective on 1 September 1961. Figure 1, pages 5 and 6, portrays the new report form.

[10]The "forced-choice" technique for rating personnel provides a check list of specific descriptive phrases, so arranged that their selection permits scoring but does not disclose their scoring effect. The rater, required to choose from among these statements, cannot be sure what effect his decision will have on the resulting rating for any individual. The obvious purpose of this method is to eliminate as far as possible any human bias by setting up a system in which the rater is prevented from knowing precisely how he has rated the ratee. For further discussion of this technique, see: William B. Wolf, The Management of Personnel (San Francisco: Wadsworth Publishing Company, 1961), p. 223.

[11]Lieutenant Colonel Robert C. Store, "The New Efficiency Report," Army, XII (August, 1961), 30.

READ CAREFULLY REFERENCED SECTION IN AR 623-105 BEFORE ATTEMPTING TO FILL OUT ANY ITEM

PART I - PERSONAL DATA *(Read Section IV, AR 623-105)*

1. LAST NAME - FIRST NAME - MIDDLE INITIAL	2 SERVICE NUMBER	3 GRADE	4. DATE OF RANK	5. BRANCH		6. INIT RA APMT	
				BASIC	DETAIL	YES	NO

7 UNIT, ORGANIZATION, STATION AND MAJOR COMMAND

PART II - REPORTING PERIOD AND DUTY DATA *(Read Sections IV and V, AR 623-105)*

8. PERIOD COVERED						9. REASON FOR RENDERING REPORT *(Check)*		10. REPORT BASED ON *(Check)*	RATER	INDORSER
FROM			TO				ANNUAL	DAILY CONTACT		
DAY	MONTH	YEAR	DAY	MONTH	YEAR		CHANGE OF RATER	FREQUENT OBSERVATION		
							PCS RATED OFFICER	INFREQUENT OBSERVATION		
DUTY DAYS			OTHER DAYS				CHANGE OF DUTY FOR RATED OFFICER	RECORDS AND REPORTS		
							OTHER *(Specify)*	OTHER *(Specify)*		

DUTY ASSIGNMENT FOR RATED PERIOD

11. PRINCIPAL DUTY 12. DUTY MOS _____ 13. AUTH GRADE _____

14. MAJOR ADDITIONAL DUTIES

PART III - MANNER OF PERFORMANCE *(Read paragraph 21c, AR 623-105)*

15. RATER

16. INDORSER ☐ I AM UNABLE TO EVALUATE THIS OFFICER FOR THE FOLLOWING REASON:

DA FORM 67-5 1 AUG 63 REPLACES DA FORM 67 5, 1 FEB 62, WHICH IS OBSOLETE EFFECTIVE 30 SEP 63

US ARMY OFFICER EFFICIENCY REPORT *(AR 623-105)*

U.S. Army Officer Efficiency Report Form

Figure 1

RATED OFFICERS NAME AND SERVICE NUMBER

PART IV - PERSONAL QUALITIES *(Read paragraph 21d, AR 623-105)*

LEGEND	DEGREE NUMBER	INADEQUATE .0	MARGINAL .1	BELOW AVERAGE .2	AVERAGE .3	ABOVE AVERAGE .4	EXEMPLARY .5
RATER	INDORSER						
.	.	a. ADAPTABILITY *(Adjusts to new or changing situations & stresses; bears up under pressure)*					
.	.	b. AMBITION *(Seeks and welcomes additional and more important responsibilities)*					
.	.	c. APPEARANCE *(Possesses military bearing and is neat, smart, and well-groomed)*					
.	.	d. COOPERATION *(Works in harmony with others as a team member)*					
.	.	e. DEPENDABILITY *(Consistently accomplishes desired actions with minimum supervision)*					
.	.	f. ENTHUSIASM *(Motivates others by his zeal)*					
.	.	g. EXPRESSION *(Expresses himself clearly and concisely both orally and in writing)*					
.	.	h. FORCE *(Executes actions vigorously)*					
.	.	i. INGENUITY *(Finds solutions to problems regardless of obstacles)*					
.	.	j. INITIATIVE *(Takes necessary and appropriate action on his own)*					
.	.	k. INTELLIGENCE *(Acquires knowledge and grasps concepts readily)*					
.	.	l. JUDGEMENT *(Thinks logically and makes practical decisions)*					
.	.	m. LOYALTY *(Renders faithful and willing support to superiors and subordinates)*					
.	.	n. MORAL COURAGE *(Intellectual honesty, willingness to stand up and be counted)*					
.	.	o. SELF-DISCIPLINE *(Conducts himself in accordance with accepted standards)*					
.	.	p. SELF-IMPROVEMENT *(Takes action to improve himself)*					
.	.	q. SOCIABILITY *(Participates freely and easily in social and community activities)*					
.	.	r. STAMINA *(Performs successfully under protracted physical and mental stress)*					
.	.	s. TACT *(Says or does what is appropriate without giving unnecessary offense)*					
.	.	t. UNDERSTANDING *(Appreciation of another person's viewpoint)*					
		← SCORE					

PART V - APPRAISAL OF QUALIFICATIONS *(Read paragraph 21e, AR 623-105)*

DUTIES		RATER	INDORSER
a. COMMAND A TACTICAL UNIT			
b. COMD NON-TACTICAL UNIT			
c. STAFF	PERSONNEL	( )	( )
UNIT *(U)*	INTEL.	( )	( )
GENERAL *(G)*	OPERATIONS	( )	( )
OR	LOGISTICS	( )	( )
JOINT *(J)*	R & D	( )	( )
	COMPT	( )	( )
d. SPECIAL STAFF RATER *(Specify)*			
INDORSER *(Specify)*			
e. SPECIALIST RATER *(Specify)*			
INDORSER *(Specify)*			
f. WITH OTHER US FORCES OR AGENCIES			
g. WITH FOREIGN FORCES OR GOVERNMENTS			
h. INSTRUCTOR			
i. WITH RESERVE COMPONENTS			

PART VI - OVERALL DEMONSTRATED PERFORMANCE AND ESTIMATED POTENTIAL *(Read paragraphs 21f and 21g, AR 623-105)*

RATING	EXPECTED DISTRIBUTION OF 100 OFFICERS RATED	OVERALL DEMONSTRATED PERFORMANCE (1) RATER	VALUE	INDORSER	ESTIMATED POTENTIAL (2) RATER	VALUE	INDORSER
a. OUTSTANDING		•	96 - 100	•		10	
b. EXCEPTIONAL		•	90 - 95	•		9	
c. SUPERIOR			80 - 89			8	
			70 - 79			7	
d. EXCELLENT			60 - 69			6	
			50 - 59			5	
e. EFFECTIVE			40 - 49			4	
			30 - 39			3	
f. MARGINAL		•	20 - 29	•		2	
g. INADEQUATE		•	10 - 19	•		1	
	SCORE						

PART VII - NUMERICAL VALUE

(Read paragraph 21h, AR 623-105)

(Scores to be entered by rater and indorser, and verified by a personnel officer)

SCORES	RATER	INDORSER
PART IV		
PART VI (1)		
PART VI (2)		
TOTAL		
COMPOSITE SCORE		

PART VIII - AUTHENTICATION *(Read paragraph 21i, AR 623-105)*

17. SIGNATURE OF RATER — DATE

TYPED NAME, GRADE, BRANCH, SERVICE NUMBER, ORGANIZATION, AND DUTY ASSIGNMENT

18. SIGNATURE OF INDORSER — DATE

TYPED NAME, GRADE, BRANCH, SERVICE NUMBER, ORGANIZATION, AND DUTY ASSIGNMENT

19. REVIEWER *(Read Section VI, AR 623-105)* MY REVIEW ☐ INDICATES NO FURTHER ACTION ☐ RESULTS IN ACTION STATED ON CONTINUATION SHEET

SIGNATURE OF REVIEWER | TYPED NAME, GRADE, BRANCH, SERVICE NUMBER, ORGANIZATION, AND DUTY ASSIGNMENT | DATE

20. THIS REPORT HAS _____ INCLOSURES *(Insert "0" if appropriate)*

21. DATE ENTERED ON DA FORM 66

22. PERSONNEL OFFICER'S INITIALS

U S GOVERNMENT PRINTING OFFICE 1983 O—698-540

Figure 1 (continued)

The Army's wait for some judgement was not a long one. Just seven months after its inception, the new reporting device suffered the observation that "unless we change the way we handle it, it seems likely that by 1964 it will have gone the way of its predecessors."[12] And speaking of predecessors, the author recorded

> ...during the last two decades the average life of any system has been little more than three years. Each new system is accompanied by bright hopes and glowing assurances that one of the knottiest problems of personnel administration finally had been solved. And every time these hopes soon give way to disappointment, then to discrediting a "new" system which had too quickly grown "old". This cycle may represent some kind of progress, but the improved reports have not been forthcoming.[13]

It can, of course, be argued that such a single observation has only so much influence, is only so valid. And that is true, but the validity of the first judgment soon became significantly more obvious. Six months later it was reinforced publicly and its reinforcement included a plea for evaluation of the marking officer to be used in "weighting" the importance of his report.[14] Four months after that came General Hall's appeal for a moratorium on ratings.[15] Next Major General A. S. Newman, USA, reviewed techniques for endorsing and rating officers.[16] Finally, General Hiester recommended a "new" system.[17]

[12]Colonel Bergen B. Hovell, "Efficiency Reporting: The Practice and the Prose," Army, XII (June, 1962), 25.

[13]Ibid.

[14]El Paso, "Efficiency Reporting," Army, XII (January, 1963), 59.

[15]General William C. Hall, loc. cit.

[16]General A. S. Newman, "Loyalty and Efficiency Reports," Army, XIV (August, 1963), 70.

[17]General David W. Hiester, loc. cit.

A system, advertised in 1961 as product of "every known theory of evaluating performance" seems now in 1965 destined to achieve only the average life of its several predecessors of the "past two decades."

The effect, if any, that the recorded instability in appraisal methods has had upon the appropriate selection of officers to be retained in the Army's professional cadre is not of immediate concern here. What is important to remember is the series of unhappy experiences which that service has encountered in attempting to make sweeping changes in their system. Important to remember, too, is that the current appraisal product of all this painful evolution is yet a system which many consider to be somewhat less than satisfactory.

The Army is not alone in its experiences.

Recent Marine Corps Officer Appraisal[18]

The Marine Corps finished the second World War with much larger personnel appraisal problems than it had ever previously encountered. From an organization of 18,000 men in 1935, it had grown to one with 485,000 by 1945. To be sure, there was a reduction to be made in strength in the return to a peace-time force, but never again was the Corps to be the small group in which large percentages of non-commissioned and commissioned officers were personally acquainted. The need for valid recording of personnel capabilities and potential value was acute.

[18]For a more complete review of Marine Corps officer appraisal see: William R. Etnyre, "Appraisal's Role in Marine Corps Career Management", (unpublished Student Thesis, George Washington University, Washington, D. C., 1965).

The late forties witnessed frustrations in personnel appraisal. Officers were evaluated using form NAVMC 652 PD. See Figure 2, pages 10 and 11. Non-commissioned officer evaluation used a similar form. The total appraisal situation was well portrayed in this published letter:

> In the old Marine Corps which we all knew and loved so dearly, normally every noncommissioned officer was marked all 5s (maximum evaluation) across the page of his service record book, regardless of his worth and regardless of the instructions issued.
>
> To correct that habit, and those worthless marks, in the new Marine Corps Manual and service record book there have been substituted new instructions and a new system of marking proficiency which ranges numerically from 0 to 9.
>
> In spite of very detailed instructions most seniors continue to give NCO's the highest possible mark, 9. This defeats the system and makes the marks worthless. It also heavily penalizes those NCO's who serve under a marking senior who abides by the instruction.[19]

One month prior to that letter which concerned junior NCOs, the Commandant of the Marine Corps issued General Order 72 which radically revised the evaluation technique and format for officers. Basically, the same reasons as Colonel Totman had identified were the cause for General Order 72.[20] Form 652PD (Rev 7-50) became effective. (See Figure 3, pages 12, 13, 14 and 15.)

In the same month that the new order became effective, the Marine Corps was to become engaged in land-locked warfare in Korea. Their combat engagement was to last just three years--

[19]Lieutenant Colonel C. O. Totman, Letter to the Editor, Marine Corps Gazette, XXXIV (August, 1950), 11.

[20]William E. Etnyre, op. cit., p. 32.

NAVMC 652 PD

REPORT ON FITNESS OF OFFICERS OF THE UNITED STATES MARINE CORPS

(To be submitted in accordance with Art. 137, U. S. Navy Regulations, 1920, and Art. 10-22, Marine Corps Manual)

..... , ... U. S. M. C.
(Name—Surname first) (Rank)

Ship or station .....

Period covered ..... months, from ..... to .....

To be answered by officer reported on:

PERMANENT SAMPLE
NUMERICAL FILE
DATE 7-1-2-49
DO NOT REMOVE FROM F.I.E

1. Regular duties .....

2. Additional duties .....

3. Wife's address .....

4. Name, relationship, and address of person other than wife to be notified in case of emergency.....

.....

..... , ... U. S. M. C.
(Signature) (Rank)

To be answered by reporting officer:

5. Reporting officer ..... , ... U. S. .....
(Name) (Rank)

6. *Method of rating.*—When rating this officer, consider carefully and keep in mind the following definitions, taking into consideration his length of service, the opportunities afforded him which might have a bearing on his performance of duty, his personal characteristics, and professional qualifications:

UNSATISFACTORY.—Inefficient; below minimum standard.
FAIR.—Satisfactory; passably efficient; up to minimum standard.
GOOD.—Average qualifications; efficient, but to a less degree than "Very good."
VERY GOOD.—Above average; efficient; well qualified.
EXCELLENT.—Highly efficient; qualified to a high degree.
OUTSTANDING.—Superior; exceptionally efficient; qualified to a preeminent degree.
NOT OBSERVED.—To be used in all cases where the reporting officer has had insufficient opportunity to observe the officer reported on during the period covered by this report to permit a rating as to performance of a particular duty, personal characteristics, or professional qualifications.

7. Before making out this report, decide in your own mind on an actual officer in the grade of the officer now being reported on who, in your opinion, based on personal knowledge, is the outstanding officer of his rank in the Marine Corps; or

Decide in your own mind the character attributes and professional qualifications which the ideal officer in the grade of the officer now being reported on should possess.

8. Considering the officer reported on in comparison with your ideal (7), and having in mind the instructions under (6) "Method of Rating", indicate your estimate of him by marking "X" in the appropriate space below.	Not observed	Unsatisfactory	Fair	Good	Very Good	Excellent	Outstanding
Performance of duty (based on fact):							
(a) Regular duties							
(b) Additional duties							
(c) Administrative duties							
(d) Executive duties							
(e) Handling officers							
(f) Handling enlisted men							
(g) Training troops							
(h) Tactical handling of troops (unit appropriate to officer's grade)							

Appraisal Form used for Marine Corps Officer Evaluation During the 1940's

Figure 2

9. To what degree has he exhibited the following qualifications? Consider him in comparison with your ideal (7), and indicate your estimate by marking "X" in the appropriate space below.	Not observed	Unsatisfactory	Fair	Good	Very Good	Excellent	Outstanding
(a) Physical fitness (physical stamina; endurance under hardship, adversity, or discouragement)							
(b) Military bearing and neatness (dignity of demeanor; neat and smart appearance)							
(c) Attention to duty (industry; the trait of working thoroughly and conscientiously)							
(d) Cooperation (the faculty of working in harmony with others, military or civilian)							
(e) Initiative (the trait of taking necessary or appropriate action on own responsibility)							
(f) Intelligence (the ability to grasp readily situations and instructions)							
(g) Judgment and common sense (the ability to think clearly and arrive at logical conclusions)							
(h) Presence of mind (the ability to think and act promptly and effectively in an unexpected emergency or under great strain)							
(i) Force (the faculty of carrying out with energy and resolution that which is believed to be reasonable, right, or duty)							
(j) Leadership (the capacity to direct, control, and influence others and still maintain high morale)							
(k) Loyalty (the quality of rendering faithful and willing service, and unswerving allegiance under any and all circumstances)							

10. Has he any characteristics—temperament, moral, physical, etc.—which adversely affect his efficiency? .....
If yes, briefly describe them .....

11. During the period covered by this report, has the work of this officer been reported on either in a commendatory way, or adversely? If so, indicate subject matter and date .....

12. During the period covered by this report was he the subject of any disciplinary action that should be included on his record? ..... If yes, and if not previously reported to Headquarters, attach separate statement of nature and attendant circumstances.

13. In case any unfavorable entries have been made by you on this or on a previous report, were the deficiencies noted brought to the attention of the officer concerned? ..... If yes, what improvement, if any, has been noted? .....
If no improvement was noted, what period of time has elapsed since the deficiencies were brought to his notice? .....

14. Considering the possible requirements of the service in war, indicate your attitude toward having this officer under your command. Would you—
(a) Particularly desire to have him? ..... (c) Be willing to have him? .....
(b) Be glad to have him? ..... (d) Prefer not to have him? .....
If (d), explain briefly .....

15. (To be answered only when reporting on officers serving under revocable commissions). Do you recommend retention in the service after expiration of revocable period of commission? .....
(Yes or no; if negative give reasons)

16. REMARKS: (To be used for additional pertinent information or comment, if any, not covered elsewhere in this report) .....

17. Indicate your estimate of this officer's "General Value to the Service", using the ratings specified in (6) .....

18. Having in mind the special fitness of this officer and the efficiency of the naval service, I certify that to the best of my knowledge and belief all entries made hereon are true and without prejudice or partiality.

..... (Signature) ..... (Rank) U. S. .....

..... (Date) ..... (Duty)

MCPR 125959 5-19-45 335m.

Figure 2 (continued)

NAVMC 632-PD
(Revised 7-50)

PERMANENT SAMPLE
/ FUNCTIONAL FILE
NO. E-16
DATE 8-29-50
DO NOT [illegible] THIS

OFFICER FITNESS REPORT

U. S. MARINE CORPS

SECTION A *(To be completed by adjutant or unit personnel officer)*

1. _____ (Last name) _____ (First name) _____ (Initial) _____ (Grade) USMC _____ (Service number)

2. Organization _____

3. Primary MOS _____ Additional MOS's _____

4. Occasion for report *(check appropriate box)*:
☐ Annual ☐ Detachment of officer reported on ☐ Change of reporting senior ☐ Concurrent report ☐ Special *(Explain on line below)*

5. Period covered: From _____ to _____ Months _____

6. Periods of nonavailability (30 days or more) *(Explain)* _____

7. Duty assignments during period covered: Regular *(Dates, descriptive title, and duty MOS)* _____

Additional *(Descriptive title and number of months)* _____

8. Officer's preference for next assignment *(1st choice)* _____
(2d choice) _____ *(3d choice)* _____

9. Name of reporting senior _____ Grade _____ US _____

10. Duty assignment _____

SECTION B *(To be completed by reporting senior)*

11. Recommendations for officer's next duty assignment:

12. During the period covered by this report:	Yes	No
(a) Has the work of this officer been reported on in a commendatory way?	☐	☐
(b) Has the work of this officer been reported adversely?	☐	☐
(c) Was he the subject of any disciplinary action that should be included on his record?	☐	☐

If Yes in (a), (b), or (c), and a report has NOT been submitted to the CMC, attach separate statement of nature and attendant circumstances. If a report has been submitted to the CMC, reference such report below:

13. Entries on this report are based on *(Check appropriate box)*:
☐ Daily contact and close observation of his work ☐ Frequent observations of his work ☐ Infrequent observations of his work

14. Remarks:

16—63230-1

Critical Incident Report implemented by General Order 72

Figure 3

SECTION C (*To be completed by reporting senior*)

DIRECTIONS

1. This section contains 27 elements on which the officer is to be rated. For each element five levels of performance are defined by examples. The examples do not cover every possible type of behavior for the element to be rated, but are *typical* examples of performance at the various levels.
2. Read and consider all five levels of performance which are defined for each element. Determine which level most properly describes the officer, and record an "X" in the box above the selected example. Mark the "unknown" box whenever you have insufficient information to make an evaluation.
3. Follow this procedure until you have recorded a mark for each of the 27 elements.

I. PROFICIENCY IN HANDLING ADMINISTRATIVE DETAILS

	☐ Unknown	☐	☐	☐	☐	☐
1. UNDERSTANDING INSTRUCTIONS:		Misunderstands instructions.	Is slow to grasp instructions.	Understands instructions with a minimum of elaboration.	Grasps quickly the main points of instructions.	Grasps instructions quickly, completely, and accurately.
2. SCHEDULING WORK:		Schedules work so poorly that the activities of others are hindered.	Makes ineffective allocations of time and effort.	Schedules work so as to cover the important phases of assignments.	Schedules work so well that all phases of assignments are covered.	Distributes time and effort so that all phases of assignments are covered in a particularly efficient manner.
3. CHECKING ACCURACY OF WORK:		Overlooks numerous serious errors.	Overlooks serious errors occasionally.	Overlooks only minor errors.	Overlooks only a few minor errors.	Overlooks no errors.
4. WRITING LETTERS AND REPORTS:		Frequently writes unacceptable letters or reports.	Writes acceptable letters or reports only after receiving suggestions for extensive revision.	Writes acceptable letters or reports.	Writes letters or reports which are clear and well expressed.	Writes superior letters or reports on difficult subjects.
5. GETTING COOPERATION:		Antagonizes many of those whose support is essential.	Makes little attempt to get cooperation.	Enlists cooperation in important phases of his work from those concerned.	Enlists cooperation in all phases of his work by dealing tactfully with those concerned.	Gets the full and active support of all concerned through his tactful and persuasive manner.
6. PRESENTING FINISHED WORK:		Presents work in such disorganized form that it gives almost no basis for action.	Presents work in such form that it gives incomplete basis for action.	Presents work in such form that action can be taken.	Presents work in such form that necessary action is clearly indicated.	Presents work so organized that action can be taken quickly and with confidence.

II. PROFICIENCY IN SUPERVISING PERSONNEL

	☐ Unknown	☐	☐	☐	☐	☐
7. DELEGATING AUTHORITY:		Hesitates to delegate necessary authority	Makes overlapping or vague delegation of authority.	Delegates authority to obtain adequate efficiency.	Delegates authority so well that efficiency is assured.	Makes clear-cut delegations of authority resulting in maximum efficiency.
8. GIVING ORDERS AND INSTRUCTIONS:		Creates resentment by the arbitrary manner in which he gives orders.	Obtains submission to orders by his reliance on authority alone.	Obtains compliance without arousing resentment when giving orders.	Achieves willing compliance by considering the self-respect of subordinates when giving orders.	Inspires enthusiastic cooperation by the use of tact in giving orders.
9. SUPPORTING ACTIONS OF SUBORDINATES:		Disclaims responsibility for subordinates' actions taken under the authority he has delegated to them.	Does not support actions taken under authority that he has delegated to subordinates.	Backs up actions taken under specific authority delegated to subordinates.	Backs up actions taken under general authority delegated to subordinates.	Takes responsibility for subordinates' actions even when subordinates exceed authority delegated to them.
10. DEVELOPING TEAMWORK:		Neglects to develop cooperation and teamwork among his subordinates.	Makes little effort to develop cooperation and teamwork among his subordinates.	Develops adequate cooperation and teamwork among his subordinates.	Develops good teamwork which results in an effective organization.	Develops outstanding teamwork which results in maximum effectiveness.

16—62230-1

(Figure 3 continued)

11. MAINTAINING RELATIONS WITH SUBORDINATES:					
☐ Unknown	☐ Fails to maintain discipline and the respect due an officer in his position because of undue familiarity with subordinates.	☐ Maintains discipline and the respect due an officer in his position with difficulty because of undue familiarity with subordinates.	☐ Maintains friendly relations with subordinates without loss of discipline or the respect due his position.	☐ Associates with subordinates in a manner which insures the respect due him as a superior officer.	☐ Attains a high level of discipline and respect from subordiontes through his friendly but dignified conduct toward them.
III. PROFICIENCY IN PLANNING AND DIRECTING ACTION					
12. SOLVING PROBLEMS:					
☐ Unknown	☐ Fails to solve problems commonly encountered in his work.	☐ Makes inadequate solutions to problems he could reasonably be expected to handle successfully.	☐ Solves day-to-day problems by making use of existing resources.	☐ Solves difficult problems by making adaptations of existing resources.	☐ Solves very unusual problems by ingenious procedures.
13. PREPARING PLANS:					
☐ Unknown	☐ Prepares inadequate plans.	☐ Prepares plans based on only obvious factors.	☐ Prepares adequate plans emphasizing the obvious factors.	☐ Prepares thorough plans based on an understanding of all factors.	☐ Prepares highly effective plans based on a thorough analysis of all factors.
14. TAKING PROMPT ACTION:					
☐ Unknown	☐ Fails to act when decisions are needed.	☐ Hesitates or puts off making needed decisions.	☐ Usually takes necessary action with a minimum of delay.	☐ Consistently takes prompt action to meet established needs.	☐ Takes prompt action in unusual or complicated situations.
15. MAKING CORRECT DECISIONS:					
☐ Unknown	☐ Frequently makes unsound or questionable decisions.	☐ Occasionally makes questionable decisions.	☐ Usually makes adequate decisions based on reasonable interpretation of facts.	☐ Usually makes good decisions showing sound evaluations of all the factors involved.	☐ Makes excellent decisions which exactly fit all the factors involved.
16. MAKING FORCEFUL EFFORTS:					
☐ Unknown	☐ Shows no vigor and force in his efforts to achieve objectives.	☐ Exhibits little vigor and force in his efforts to achieve objectives.	☐ Usually vigorous and forceful in his efforts to achieve objectives.	☐ Pursues objectives of the organization with vigor and force.	☐ Makes extremely vigorous and forceful efforts to achieve objectives.
17. ABSORBING MATERIALS:					
☐ Unknown	☐ Delays operations because of slowness in absorbing facts.	☐ Achieves inadequate results because of slow learning.	☐ Learns rapidly enough to do his job in an acceptable manner.	☐ Achieves good results because of capacity to learn involved materials rapidly.	☐ Achieves exceptional results because of his unusual ability to learn.
IV. ACCEPTANCE OF INDIVIDUAL RESPONSIBILITY					
18. CARRYING OUT ORDERS AND DIRECTIVES:					
☐ Unknown	☐ Frequently delays compliance with orders and directives.	☐ Sometimes delays compliance with orders and directives.	☐ Carries out orders and directives without undue delay.	☐ Carries out orders and directives promptly.	☐ Carries out promptly and effectively the spirit and intent of orders and directives.
19. COOPERATING WITH ASSOCIATES:					
☐ Unknown	☐ Cooperates grudgingly with associates.	☐ Gives assistance to associates when requested to do so.	☐ Cooperates willingly with associates when called upon.	☐ Voluntarily assists associates when help is required.	☐ Is alert to offer assistance to associates when help is needed.
20. ATTENDING TO DUTY:					
☐ Unknown	☐ Requires constant supervision to keep his attention on his assigned duties.	☐ Works just hard enough to get by.	☐ Shows acceptable industry in his work.	☐ Works hard and willingly to achieve objectives.	☐ Does extra work voluntarily in order to achieve objectives.
21. MAINTAINING MILITARY APPEARANCE:					
☐ Unknown	☐ Appearance and bearing interfere with his effectiveness.	☐ Appearance and bearing detract somewhat from his effectiveness.	☐ Presents a good appearance and bearing.	☐ Appearance and bearing create a distinctly favorable impression.	☐ Appearance and bearing inspire a high degree of confidence.
22. CONFORMING TO STANDARDS OF PERSONAL CONDUCT:					
☐ Unknown	☐ Reduces his efficiency or discredits the service by nonconformance to accepted standards of personal conduct.	☐ Does not attain his full efficiency because of occasional laxity in his personal conduct.	☐ Follows acceptable standards in his personal conduct.	☐ Maintains high standards in his personal conduct.	☐ Is a distinct credit to the service by maintaining exceptionally high standards of personal conduct.
23. HANDLING PUBLIC RELATIONS:					
☐ Unknown	☐ Handles public relations in such a manner as to create antagonism.	☐ Overlooks opportunities to [illegible] good public relations.	☐ In handling public relations usually creates a favorable impression.	☐ Is alert to opportunities to further good public relations.	☐ Creates opportunities to advance best interests of the service.

16—62230-1

Figure 3 (continued)

Figure 3 (continued)

V. PROFICIENCY IN DUTY ASSIGNMENTS

24. APPLYING TRAINING AND INFORMATION:

☐ Unknown	☐ Makes serious mistakes in applying fundamentals of his training.	☐ Makes acceptable application of his training and information only to routine problems.	☐ Makes acceptable application of his training and information to most problems.	☐ Makes skilled application of his training and information to most problems.	☐ Demonstrates an unusually high degree of skill in applying his training and information to all problems.

25. IMPROVING EFFECTIVENESS:

☐ Unknown	☐ Overlooks opportunities offered him to improve his effectiveness.	☐ Makes limited effort to improve his effectiveness.	☐ Accepts opportunities to improve his effectiveness.	☐ Is alert to opportunities to improve his effectiveness.	☐ Actively seeks out opportunities to improve his effectiveness.

26. PROFICIENCY IN REGULAR DUTIES:

☐ Unknown	☐ Performs inadequately in many phases of his regular duties.	☐ Performs adequately in routine phases of his regular duties.	☐ Performs adequately in dealing with all problems encountered in his regular duties.	☐ Performs excellently in all phases of his regular duties.	☐ Does exceptional work even in the most difficult phases of his regular duties.

27. PROFICIENCY IN ADDITIONAL DUTIES:

☐ Unknown	☐ Performs inadequately in many phases of his additional duties.	☐ Performs adequately in routine phases of his additional duties.	☐ Performs adequately in dealing with all problems encountered in his additional duties.	☐ Performs excellently in all phases of his additional duties	☐ Does exceptional work even in the most difficult phases of his additional duties.

SECTION D (*To be used by reporting senior, when appropriate*)

Record here any comments necessary to clarify specific ratings made in Section C

SECTION E (*To be completed by reporting senior*)

I CERTIFY that to the best of my knowledge and belief all entries made hereon are true and without prejudice or partiality.

....

(Signature of reporting senior) (Date)

SECTION F (*To be completed by officer reported on*)

I have seen this completed report:

(*Check one*) ☐ I have no statement to make.
☐ I have attached a statement.

....

(Signature of officer reported on) (Date)

SECTION G (*To be completed by reviewing officer*)

Name of reviewing officer..... Grade..... USMC.....

Duty assignment ..... Initials.....

Figure [illegible] (continued) Page 3 (continued)

eighteen months more, it is to be reported, than NAVMC form 652PD (Rev 7-50) was to remain effective.

Etnyre states that "the new system was riddled with problems from its inception. Reporting seniors balked..."[21] This may be a harsh judgment; yet, apparently selection boards found almost no means to make comparisons of officers due for consideration for promotion. Whereas discrimination in marked values were difficult to distinguish under the old system of the forties, they could now distinguish little or nothing under the new.

It must have been a most difficult decision, but the Marine Corps was to return to essentially the same reporting system which it had used prior to General Order 72. It is true that the new form of 1952 did not look exactly the same as that used in the forties, but it is also a fact that the items to be considered and the rating scale to be used were nearly identical to the old form. Figure 4 is copied from the form in use today; it differs from the 1952 form only by its inclusion of item 19b. (See figure 4, pages 17 and 18).

Having returned to a system of officer evaluation which had already been once rejected, the Corps was to find through the years that results of that system were frequently to be less than desirable. Recall the statement of Major General Berkeley on page 3; to it can be added comments of other prominent Marines. For one example, Major General Donald M. Weller, USMC, while Deputy Chief of Staff for Personnel, stated:

[21] Ibid., p. 37.

OFFICER FITNESS REPORT—U.S. MARINE CORPS

NAVMC 10147-PD (REV 4-61)
(SUPERSEDES NAVMC 10147-PD (REV 2-57) WHICH MAY BE USED ALL OTHER EDITIONS ARE OBSOLETE)

SECTION A

1 _____ (*Last name*) _____ (*First name*) _____ (*Initial*) _____ (*Grade*) USMC _____ (*Service number*)

2 ORGANIZATION _____

3 PRIMARY MOS _____ ADDITIONAL MOS'S _____

4 OCCASION FOR REPORT (*Check appropriate box*)

☐ SEMIANNUAL ☐ DETACHMENT OF OFFICER REPORTED ON (*Enter unit or station to which detached on line below*) ☐ CHANGE OF REPORTING SENIOR ☐ CONCURRENT REPORT ☐ OTHER (*Explain on line below*)

_____

5 PERIOD COVERED FROM _____ (*Day, month, year*) TO _____ (*Day, month, year*) MONTHS _____

6 PERIODS OF NONAVAILABILITY (30 DAYS OR MORE) (*Explain*) _____

_____

7 DUTY ASSIGNMENTS DURING PERIOD COVERED: REGULAR (*Dates, descriptive title, and duty MOS*) _____

_____

ADDITIONAL (*Descriptive title and number of months*) _____

MARKSMANSHIP QUALIFICATIONS (*Lieutenants and Captains*) _____

8 WIFE'S ADDRESS _____

_____

9 AGE, RELATIONSHIP OF DEPENDENTS REQUIRING TRANSPORTATION _____

_____

_____

10 OFFICER'S PREFERENCE FOR NEXT ASSIGNMENT (*1st choice*) _____

(*2d choice*) _____ (*3d choice*) _____

_____ (*Signature of officer reported on*) _____ (*Date*)

SECTION B (*To be completed by reporting senior*)

11 NAME OF REPORTING SENIOR _____ GRADE _____ USN _____

12 DUTY ASSIGNMENT _____

13 RECOMMENDATIONS FOR OFFICER'S NEXT DUTY ASSIGNMENT

_____

14 DURING THE PERIOD COVERED BY THIS REPORT	YES	NO
(*a*) Has the work of this officer been reported on in a commendatory way?	☐	☐
(*b*) Has the work of this officer been reported adversely?	☐	☐
(*c*) Was this officer the subject of any disciplinary action that should be included on his record?	☐	☐

If YES in (a), (b), or (c), and a report has NOT been submitted to the CMC, attach separate statement of nature and attendant circumstances. If a report has been submitted to the CMC, reference such report below:

15A ENTRIES ON THIS REPORT ARE BASED ON (*Check appropriate box*)

☐ DAILY CONTACT AND CLOSE OBSERVATION OF THIS OFFICER'S WORK ☐ FREQUENT OBSERVATIONS OF THIS OFFICER'S WORK ☐ INFREQUENT OBSERVATIONS OF THIS OFFICER'S WORK

15B TO BE COMPLETED ON ORGANIZED RESERVE OFFICERS

ATTENDED ____ OF ____ SCHEDULED DRILLS

Officer Appraisal Report Form Currently used by the Marine Corps

Figure 4

SECTION C (*To be completed in* **pen and ink** *by reporting senior*)

Considering the officer reported on in comparison with all other officers of the same grade whose professional abilities are known to you personally, indicate your estimate of this officer by marking "X" in the appropriate spaces below.

16. PERFORMANCE OF DUTY (*Based on fact*)	NOT OBSERVED	UNSATISFACTORY	BELOW AVERAGE	AVERAGE	ABOVE AVERAGE	EXCELLENT	OUTSTANDING
(a) REGULAR DUTIES							
(b) ADDITIONAL DUTIES							
(c) ADMINISTRATIVE DUTIES							
(d) HANDLING OFFICERS							
(e) HANDLING ENLISTED PERSONNEL							
(f) TRAINING PERSONNEL							
(g) TACTICAL HANDLING OF TROOPS (*Unit appropriate to officer's grade*)							

17. TO WHAT DEGREE HAS HE EXHIBITED THE FOLLOWING?							
(a) ENDURANCE (*Physical and mental ability for carrying on under fatiguing conditions*)							
(b) PERSONAL APPEARANCE (*The trait of habitually appearing neat, smart, and well-groomed in uniform or civilian attire*)							
(c) MILITARY PRESENCE (*The quality of maintaining appropriate dignity and soldierly bearing*)							
(d) ATTENTION TO DUTY (*Industry; the trait of working thoroughly and conscientiously*)							
(e) COOPERATION (*The faculty of working in harmony with others, military and civilian*)							
(f) INITIATIVE (*The trait of taking necessary or appropriate action on own responsibility*)							
(g) JUDGMENT (*The ability to think clearly and arrive at logical conclusions*)							
(h) PRESENCE OF MIND (*The ability to think and act promptly and effectively in an unexpected emergency or under great strain*)							
(i) FORCE (*The faculty of carrying out with energy and resolution that which is believed to be reasonable, right or duty*)							
(j) LEADERSHIP (*The capacity to direct, control, and influence others and still maintain high morale*)							
(k) LOYALTY (*The quality of rendering faithful and willing service, and unswerving allegiance under any and all circumstances*)							
(l) PERSONAL RELATIONS (*Faculty for establishing and maintaining cordial relations with military and civilian associates*)							
(m) ECONOMY IN MANAGEMENT (*Effective utilization of men, money and materials*)							

18. Considering the possible requirements of service in war, indicate your attitude toward having this officer under your command.

Would you— ☐ NOT OBSERVED ☐ PREFER NOT TO HAVE? ☐ BE WILLING TO HAVE? ☐ BE GLAD TO HAVE? ☐ PARTICULARLY DESIRE TO HAVE?

19. (a) Indicate your estimate of this officer's "General Value to the Service" by marking "X" in the appropriate box:

NOT OBSERVED	UNSATISFACTORY	BELOW AVERAGE		AVERAGE	ABOVE AVERAGE		EXCELLENT		OUTSTANDING
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

(b) Show distribution of all Item 19. (a) markings awarded officers of his grade for this reporting occasion:

___	___	___	___	___	___	___	___	___	___	___

SECTION D (*To be completed by reporting senior* **in pen and ink.**) *Record in this space a concise appraisal of the professional character of the officer reported on.* (*This space must not be left blank.*)

SECTION E (*To be completed by the reporting senior*)

I CERTIFY that to the best of my knowledge and belief all entries made hereon are true and without prejudice or partiality.

_____ _____

(*Signature of reporting senior*) (*Date*)

SECTION F (*To be completed when required*)

I have seen this completed report. (*Check One*)

☐ I HAVE NO STATEMENT TO MAKE

☐ I HAVE ATTACHED A STATEMENT

_____ _____

(*Signature of officer reported on*) (*Date*)

SECTION G (*To be completed by reviewing officer*)

NAME OF REVIEWING OFFICER _____ GRADE _____ US _____

DUTY ASSIGNMENT _____ INITIALS _____

* U.S. GOVERNMENT PRINTING OFFICE 1961 O—591135

Figure 4 (continued)

Figure 4 (continued)

> The evidence is adequate to properly identify the best officers and non-commissioned officers, provided that fitness reports are not inflated...[22]
>
> It is no secret, particularly among those who have recently served on selection boards, that there has been a tendency to inflate fitness reports. Obviously this makes the task of the selection board more difficult. It is more difficult to identify those with the greatest potential.
>
> ...it should be clear that the key to the selection is the care and judgment exercised by commanding officers in marking fitness reports.[23]

Those statements, and many like them, suggest that the Corps was, and is, "to live" with a system rather than "to have" a system of officer evaluation and this may suggest criticism be given to the 1952 decision to take a "giant step backward."[24] Yet, the recent experiences of the U. S. Army appear to confirm the folly of revolutionary changes and to suggest that the Corps' decision to reverse itself in 1952 was a pre-eminently good one, weaknesses of the system notwithstanding.

And, when the editor of the Gazette spoke of selection board difficulties in making valid comparisons of officers because of weak fitness report preparation last November, he coupled with it this report of the Corps' most recent public re-commitment to the present system like this:

> ...that's another reason why HQMC (Headquarters, Marine Corps) plans no changes in fitness report format. Comparisons are difficult enough to draw

[22]For more on the marking "inflation" problem, see Chapter II.

[23]General Donald M. Weller, "Personnel Policies and You," Marine Corps Gazette, XLIV (June, 1960), 13.

[24]William E. Etnyre, op. cit., p. 37.

without adding to the havoc of educating marking seniors with a new report.[25]

The Thesis

If military personnel evaluation in general can provoke such negative criticism from prominent sources, should we not ask: why? If Marine Corps personnel evaluation, in particular, can cause a Marine general officer to speculate that one of every ten promotions ("over the years our experience has been that they bat about 90%...") is a questionable situation, should we not ask: what can be done to improve the matter? If we can begin to improve the system, little by little, with no risk of loss of effectiveness as we now know it, should we not begin?

It is our thesis that significant improvement in the quality of Marine Corps personnel appraisal can be realized by better use of the current reporting system. Our study seeks weaknesses of the system and examines some alternatives to them. Although some consideration of the rating scale will be made, we will not suggest revolutionary change to the format currently used in reporting.

Probably, one of the major efforts to be made in overcoming problems of the system is in the application of electronic data processing (EDP). Eventually, a large application of EDP will occur. Our study of EDP in the report system is limited only to "initial" applications of machines in standard scoring of reports and to some uses of those scoring results.

[25]Lieutenant Colonel W. L. Traynor (ed.), "Officer Markings Get Special Attention," Marine Corps Gazette, XLVIII (November, 1964), 6.

CHAPTER II

THE REPORTING ENVIRONMENT

Some General Information

Fitness reports, with almost negligible exception, are prepared at least twice annually for each officer of the Marine Corps. For various reasons, though, it may be that the annual average number of fitness report submissions per officer more closely approximates 3.5 to 4.0.[1] Therefore, it appears that the volume of officer fitness reports is about 60,000 per year. That figure is important in considering machine (computer) time which might be required in computer applications.

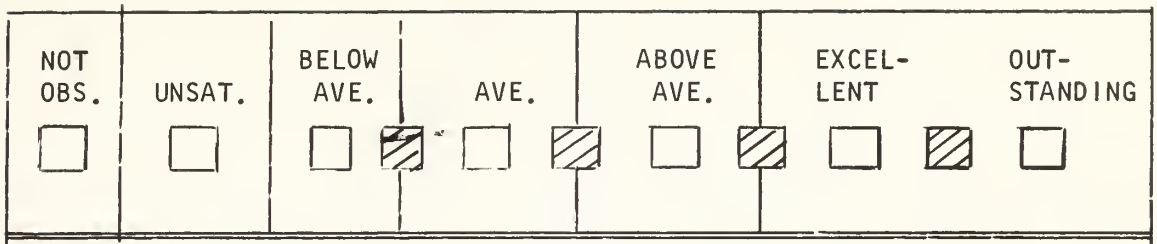
It is best noted here that a sizeable portion of the 60,000 reports may be "not observed" reports.[2] Any machine programming must be capable of handling that type of report.

The Rating Scale and Normal Populations

Marines are rated in three general areas: past performance of duty, personal traits and professional characteristics, and potential--under both combat and general considerations. The rating scale to which the Marine Corps is committed is shown in Figure 5. The shaded marking-boxes which appear between the marking classifications are available for use only when considering the Marine's "General Value to Service."

[1]For a complete study of submission regulations, see: U. S. Marine Corps, Marine Corps Personnel Manual, Officer and Non-commissioned Officer Fitness Reports, May 1964, Chapter 15, paragraph 15068.

[2]U. S. Marine Corps, loc. cit.



Marine Corps Personnel Evaluation Rating Scale

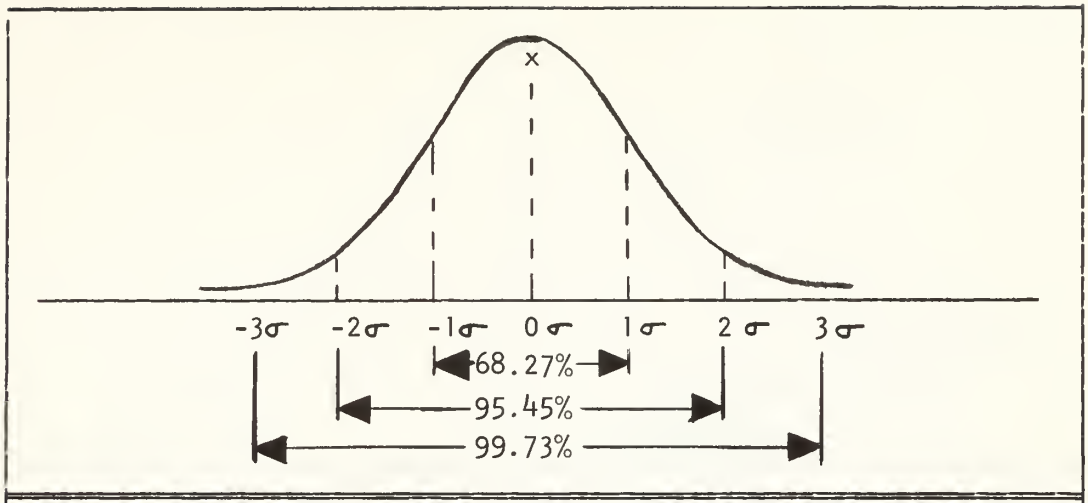
Figure 5

What sort of a distribution of markings should the Marine Corps expect from this scale? Psychologists are agreed that "psychological measurements, and such biological factors as height and weight, are distributed in approximate accordance with the normal probability curve."[3] Stated otherwise, "it is well recognized that all, or nearly all, measurements of human traits and abilities result in distributions of approximately this form."[4] The presumption, and a basic assumption of this study, is that the Commandant of the Marine Corps should expect a normal distribution of markings over the scale from unsatisfactory to outstanding.

At this point, let us briefly review the properties of a 'normal population'. The normal distribution curve is the familiar bell-shape graph as shown in Figure 6. The average value of occurrences within the distribution is centrally located at $\bar{x}$, the mean. All other values deviate from the mean. A measure of their deviation from the mean has been called standard deviation. Standard deviation, commonly referred to by the Greek symbol σ, has been so defined that 99.73% of all items of a normal distribution lie within three standard deviations of the mean or average

[3]Norman L. Munn, Psychology: The Fundamentals of Human Adjustment, (Boston: Houghton Mifflin Company, 1946), p. 398.

[4]Joseph Tiffin, Industrial Psychology, (New York: Prentice-Hall Incorporated, 1952), p. 494.



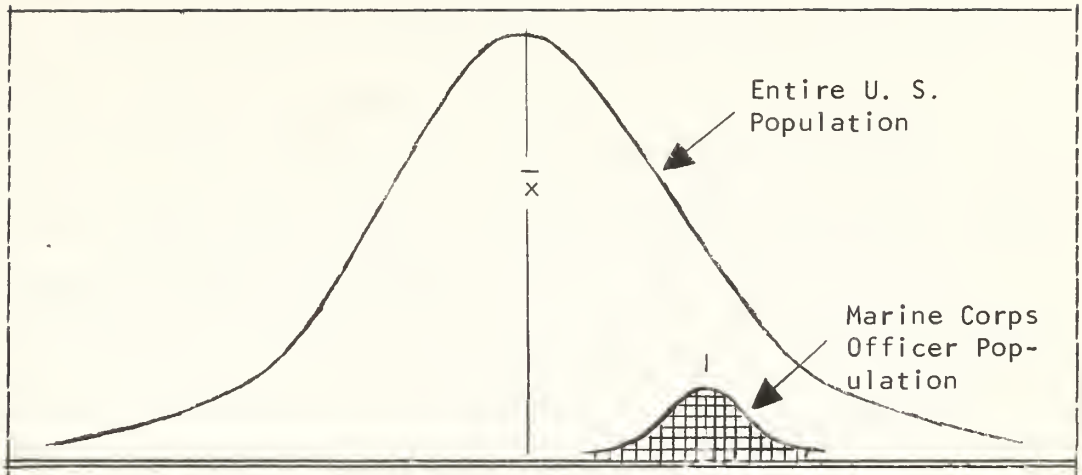
The Normal Distribution

Figure 6

item. Six standard deviations, three above mean and three below mean, include approximately all items which make up a normal population. Or, in other words, the value (rating) scale of a normal population is covered by six discriminations when we speak of standard deviations.[5]

For the unwary, the reminder is placed that we are not suggesting Marine Corps officers are a random sampling of the population of the United States. If, somehow, it were possible to compare the sampling and the population of the U. S. in terms of the characteristics included in the fitness report, it is possible that Figure 7 might show the relative distributions, except, of course, for comparative scale of drawings. The point is made to emphasize the Marine Corps officer group is a normally distributed group drawn from a much larger normally distributed group.

[5]For a complete discussion of normal distribution, see: Paul G. Hoel, Introduction to Mathematical Statistics, (New York: John Wiley and Sons, Inc., 1947), p. 28 ff.



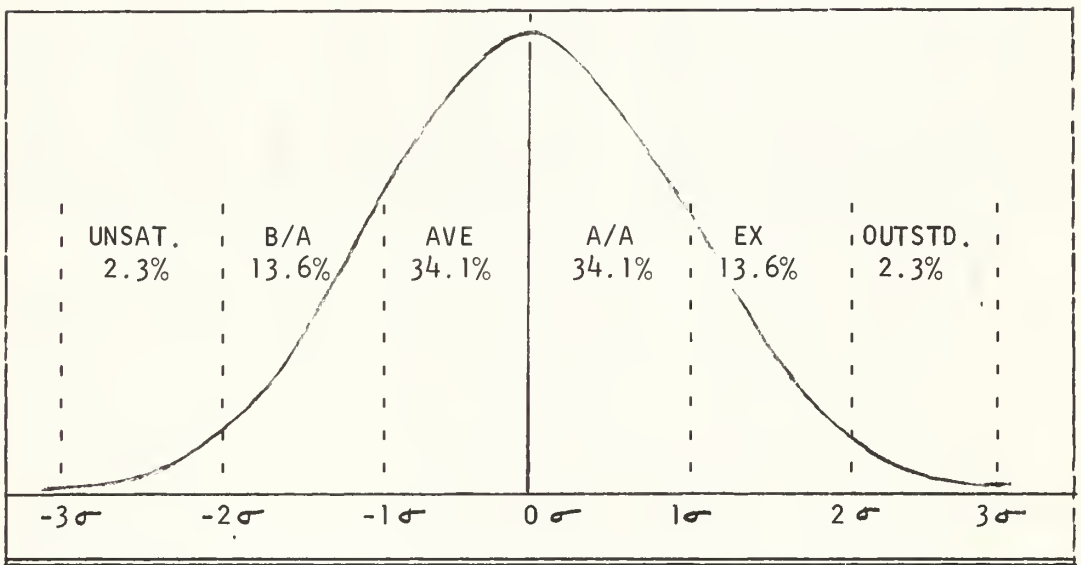
Likely Area of Entire U. S. Population From
Which Marine Corps Officers are Selected

Figure 7

Valid questions here may be these: Could the foregoing be one of the underlying causes of inflated markings which prevail in the system? Is the officer marking First Lieutenant John Brown unable to sort out all the first lieutenants whom he knows and use their collective performances as a yardstick as the system requires? Or, as an alternative, is the marking officer comparing First Lieutenant John Brown with the portion of the entire U. S. population which he knows?

While those academic questions plead attention, let us consider the coincidence that the most important property of the normal curve, standard deviation, divides the distribution into six groups (99.73% of cases lie within plus or minus 3σ of $\bar{x}$), and that the rating scale to which the Marine Corps is currently committed also tends to divide the normally distributed officer population into six groups (unsatisfactory to outstanding). What is the implication of this similarity?

If we were to superimpose the rating scale of the Marine Corps fitness report on the normal distribution curve--and this should be the intent of our rating effort--it appears that we are demanding a distribution of markings for officers of each grade as appears in Figure 8.



Superimposing Marine Corps Rating Scale on Normal Distribution

Figure 8

The first unacceptable characteristic of the Marine Corps rating scale is immediately obvious. "Average," a term generally connoting symmetry about mean, falls entirely below (to the left) of the mean. A very important first step toward inflated ratings has thus been committed by the Marine Corps rating system, even before the stroke of the pen of a marking officer.

If the graphic superimposing (Figure 8) of the rating scale can give first insight to weakness of the system, then the question occurs: can the tabular superimposing of the rating system upon the normal distribution help the analysis? Table I is such a tabulation.

TABLE I

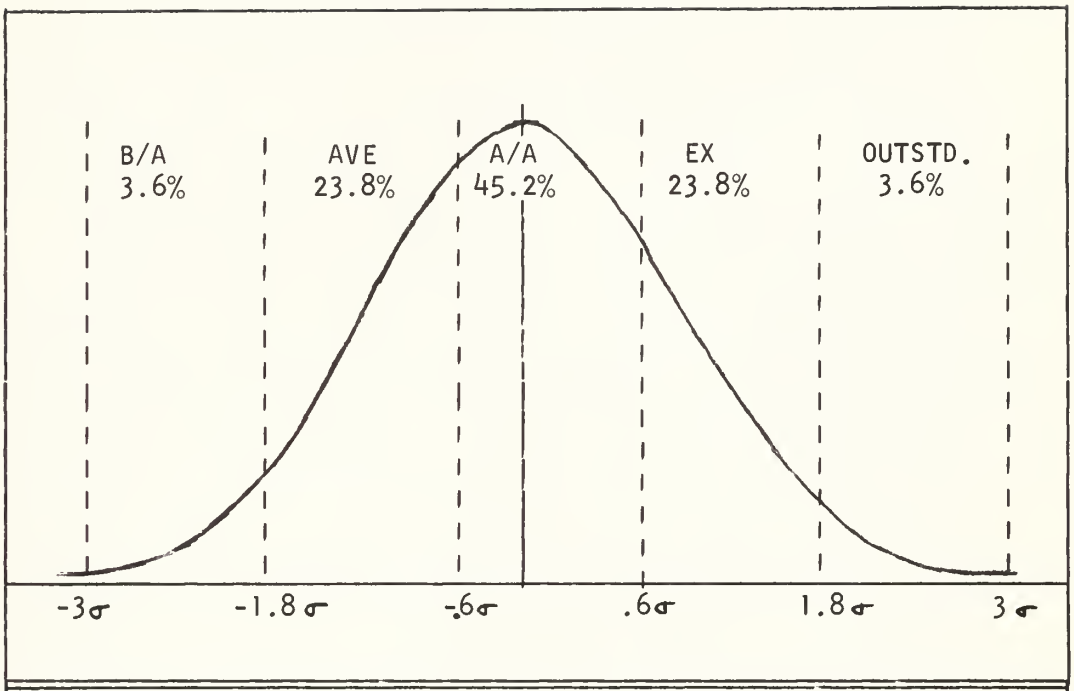
TABULAR NORMAL DISTRIBUTION OF MARINE CORPS OFFICERS

Rank	Approx. No. Officers	Normal Distribution UNSAT 2.3%	B/A 13.6%	AVE 34.1%	A/A 34.1%	EX 13.6%	O 2.3%	Total
Gen	60	2	8	20	20	8	2	60
Col	600	14	82	204	204	82	14	600
LtCol	1650	38	222	565	565	222	38	1650
Maj	2500	58	340	852	852	340	58	2500
Capt	3500	81	476	1193	1193	476	81	3500
Lts	7485	172	1018	2553	2552	1018	172	7485
Tot	15795	365	2146	5387	5386	2146	365	15795

Suffice it to say that the completion of this table itself became academic after computation of the first four figures. Such a distribution "demands" 2.27% officers be declared unsatisfactory in every rank and that 13.60% of officers of a rank be declared below average. In terms of 60 general officers of the Marine Corps, this suggests that 9 of them are clearly of a quality below average or less; of 600 colonels, 95 are to be so designated. Now, this seems a false and unacceptable implication; and it's probably at least as false and unacceptable to the 60 general officers and 600 colonels of the Marine Corps as it is to us.

The first alternative to superimposing the full rating scale on the normal distribution is to disregard the "unsatisfactory" rating as a possible choice to normal marking. An officer who somehow should qualify for such an evaluation is apparently a special case and presumably will not long be an officer.

With that very logical situation prevailing, the second real giant step toward inflated markings has been conceded by the system. Superimposing the remaining five discriminatory categories upon the normal distribution has been done in Figure 9. One unpalatable



Graph Superimposing Five Discriminations of the Marine Corps Rating Scale on Normal Distribution

Figure 9

matter is immediately obvious; the "above average" category is now at the center of the distribution; semantics ("Above Average" now becomes the average) become more severely distorted. Moreover, 630 officers (3.6%) of the Marine Corps should yet be clearly designated below average or less.

The trend of the argument seems obvious: conceded an inch, take a mile. Shortly, only excellent and outstanding marks are awarded; professional discrimination, vital to the welfare of the Marine Corps and the Marine, is almost non-existent. And, if this seems an unfair conclusion, let us investigate some statistics.

The Administrative and Records unit, Officer Detail Section, Assignment and Classification Branch of the Personnel Department, Headquarters Marine Corps conducted a survey of submitted fitness reports in 1959. All fitness reports submitted upon officers of the 2d Marine Aircraft Wing and the 2nd Marine Division between September 1958 and April 1959 were carefully tabulated. The results seem eloquent argument for revision of the marking cues on the Marine Corps rating scale.[6] Table II tabulates the results of the study; table II is located on page 29.

Graphing of the statistics, in comparison with the normal distribution makes an interesting study too. For that study, see Figures 10 a-h, pages 30, 31, 32 and 33.

There are some closing considerations to be given to the rating scale and its possible change. First, confronted with the rating dilemma as it has been presented, some marking officers in the past have found their own solution to the limited number of

[6]Results of this study are included in: U. S. Marine Corps, unpublished letter A03E-rlm, 27 October 1959.

TABLE II

TABULATED OFFICER MARKINGS FOR PERIOD SEPTEMBER 1958 TO APRIL 1959.
OFFICERS INCLUDED WERE OF 2ND MARINE DIVISION AND 2ND MARINE AIRWING.

Rnk	Rtd	Unsat		B/A		Ave		Ave-A/A		A/A		A/A-EX		EX		Ex-O		O	
		Per cent	Num ber	Per cent	Num ber	Per cent	Num ber	Per cent	Num ber	Per cent	Num ber	Per cent	Num ber	Per cent	Num ber	Per cent	Num ber	Per cent	Num ber
2nd Marine Division:																			
Lt	798							1.0	8	3.0	24	13.0	104	48.0	383	27.0	215	0.5	4
Cpt	391									1.0	4	5.0	20	30.0	117	37.0	145	23.0	90
Maj	187											2.0	4	18.0	34	48.0	90	31.0	58
LtC	78									1.0	1			27.0	21	30.0	23	25.0	20
2nd Marine Air Wing:																			
Lt	802							0.5	4	2.0	16	6.0	48	36.0	289	39.0	313	13.0	104
Cpt	338									2.0	7	0.5	1	4.0	14	24.0	81	69.5	235
Maj	347											.6	2	9.0	31	24.0	83	45.0	156
LtC										1.0	xx	1.0	xx	4.0	xx	35.0	xx	59.0	xxx
Total: 2nd Marine Division and 2nd Marine Air Wing:																			
Lt	1600							.7	12	2.5	40	9.5	152	42.0	672	33.0	528	6.8	108
Cpt	729									1.5	11	2.9	21	18.0	131	31.0	226	44.6	325
Maj	534											1.1	6	12.2	65	32.4	173	40.0	214
LtC	xx									xx	xx	xx	xx	xx	xx	xx	xx	xx	xx

xx Number of officers rank Lieutenant Colonel not available for Air Wing.

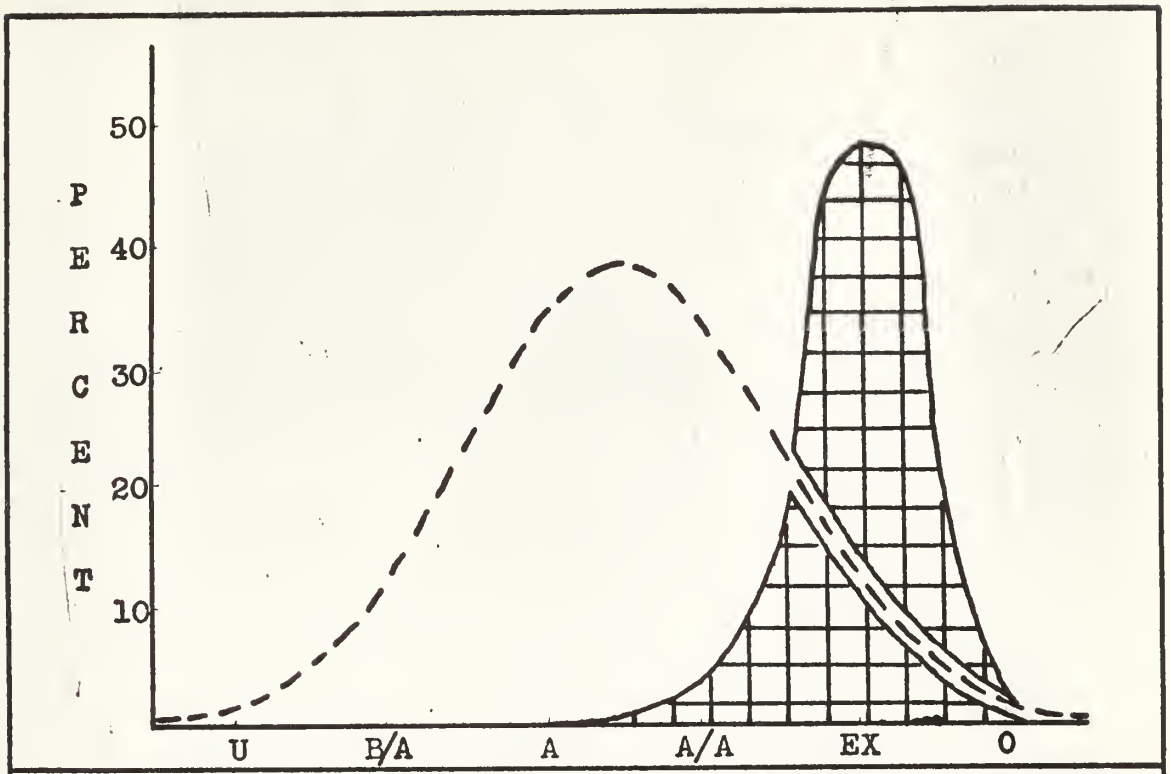


Figure 10a. Distribution of 2nd Marine Division officer (lieutenants) ratings for period Sep 1958 to Apr 1959 compared with normal distribution.

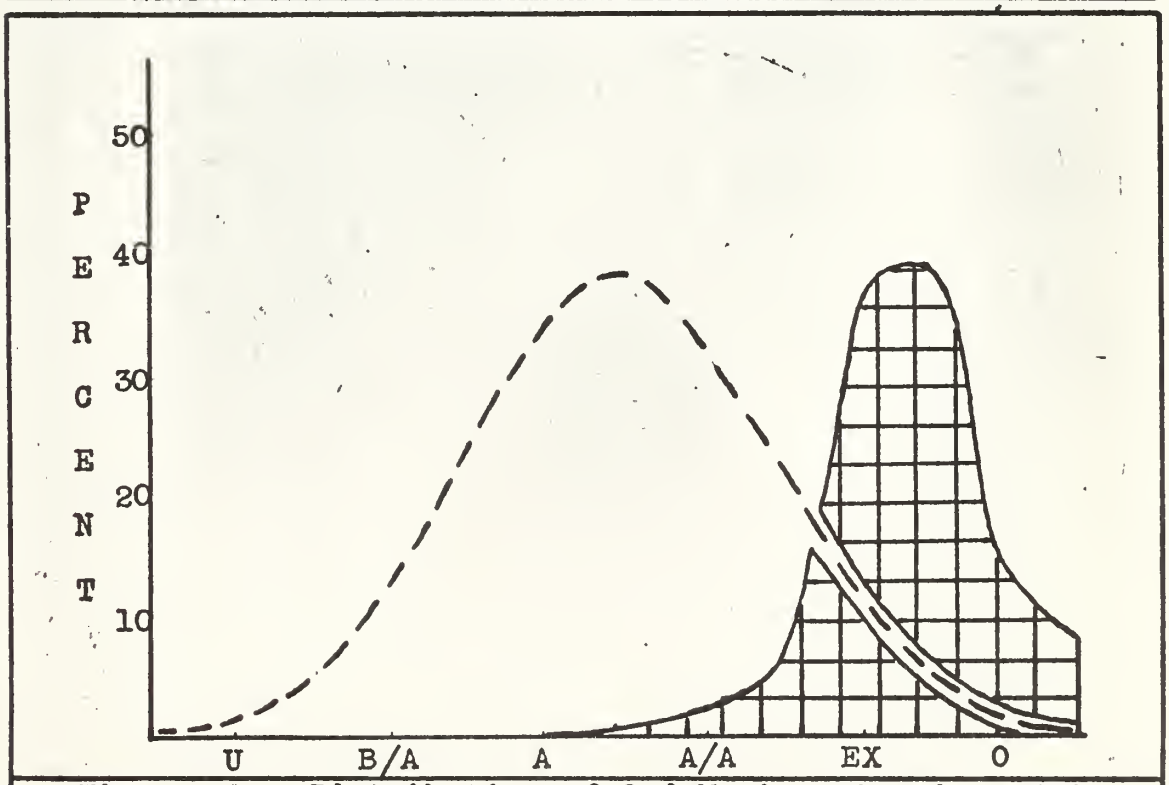


Figure 10b. Distribution of 2nd Marine Air Wing officer (lieutenants) ratings for period Sep 1958 to Apr 1959 compared with normal distribution.

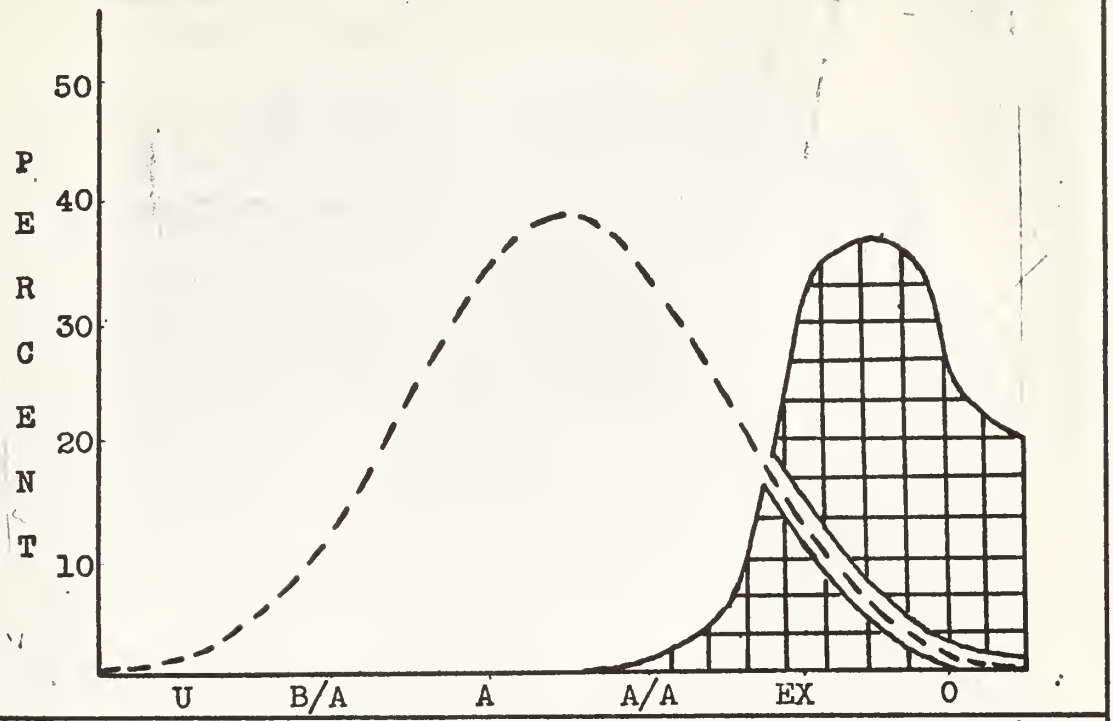


Figure 10c. Distribution of 2nd Marine Division officer (captains) ratings for period Sep 1958 to Apr 1959 compared with normal distribution.

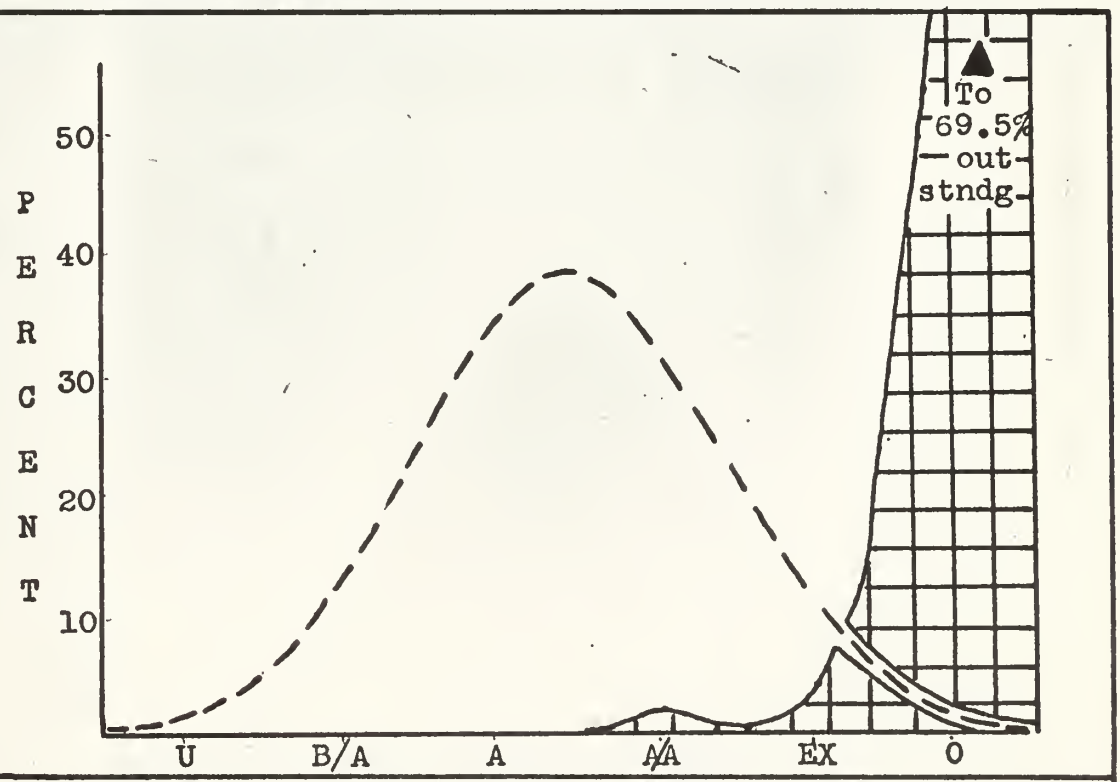


Figure 10d. Distribution of 2nd Marine Air Wing officer (captains) ratings for period Sep 1958 to Apr 1959 compared with normal distribution.

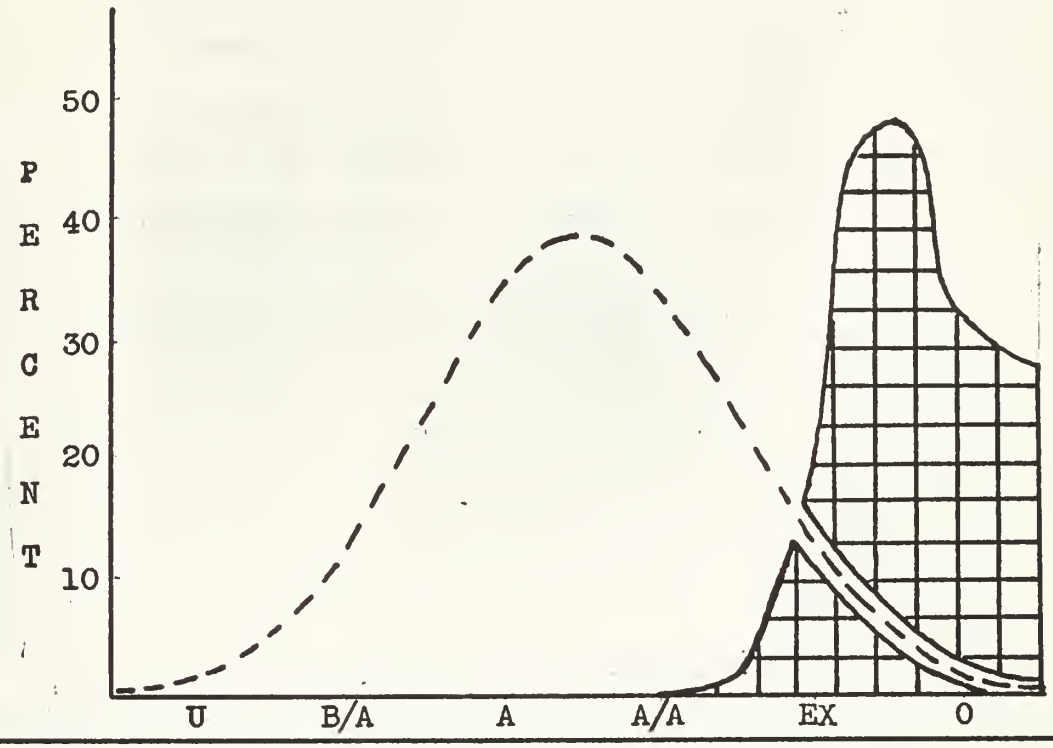


Figure 10e. Distribution of 2nd Marine Division officer (majors) ratings for period Sep 1958 to Apr 1959 as compared with normal distribution.

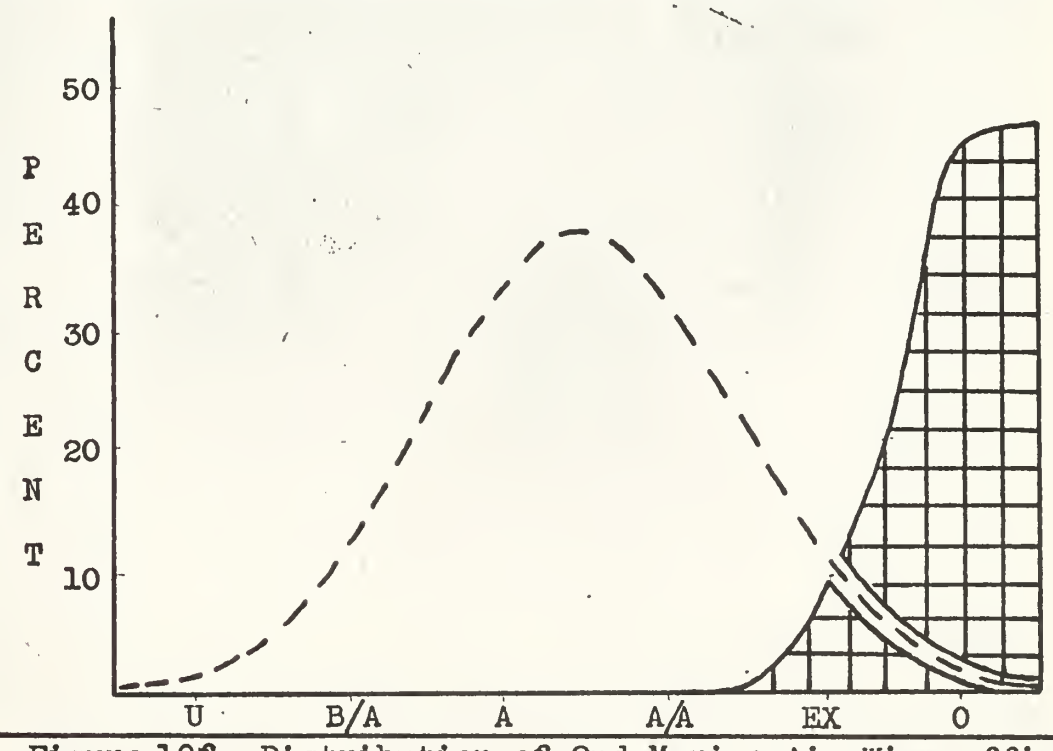


Figure 10f. Distribution of 2nd Marine Air Wing officer (majors) ratings for period Sep 1958 to Apr 1959 as compared with normal distribution.

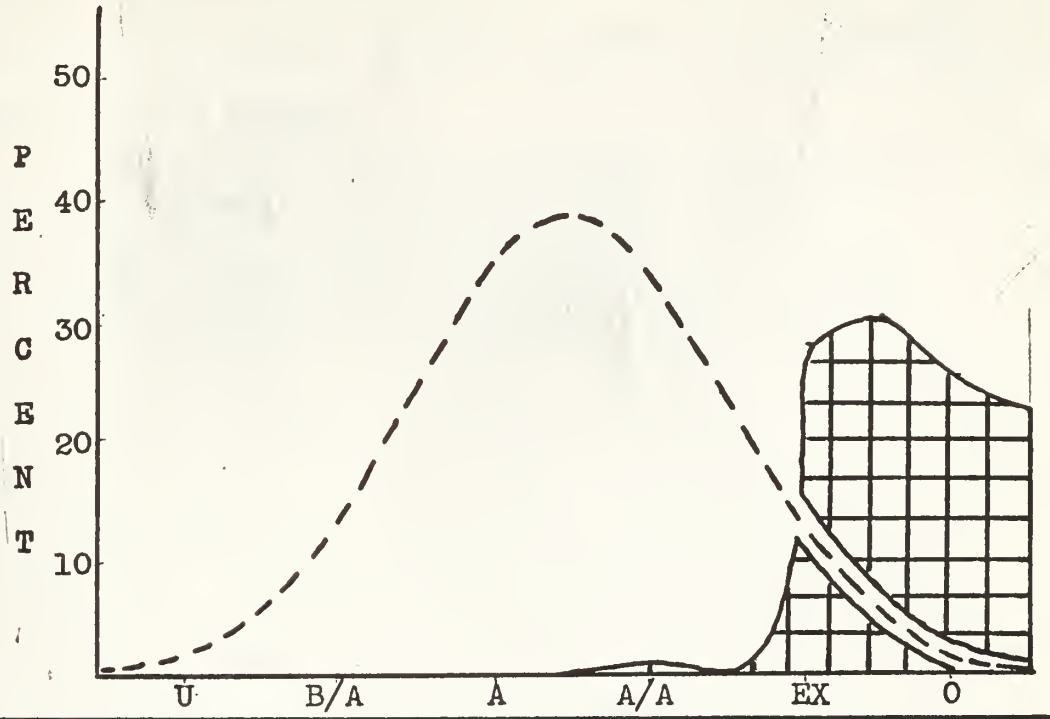


Figure 10g. Distribution of 2nd Marine Division officer (lieutenant colonels) ratings for period Sep 1958 to Apr 1959 as compared with normal distribution.

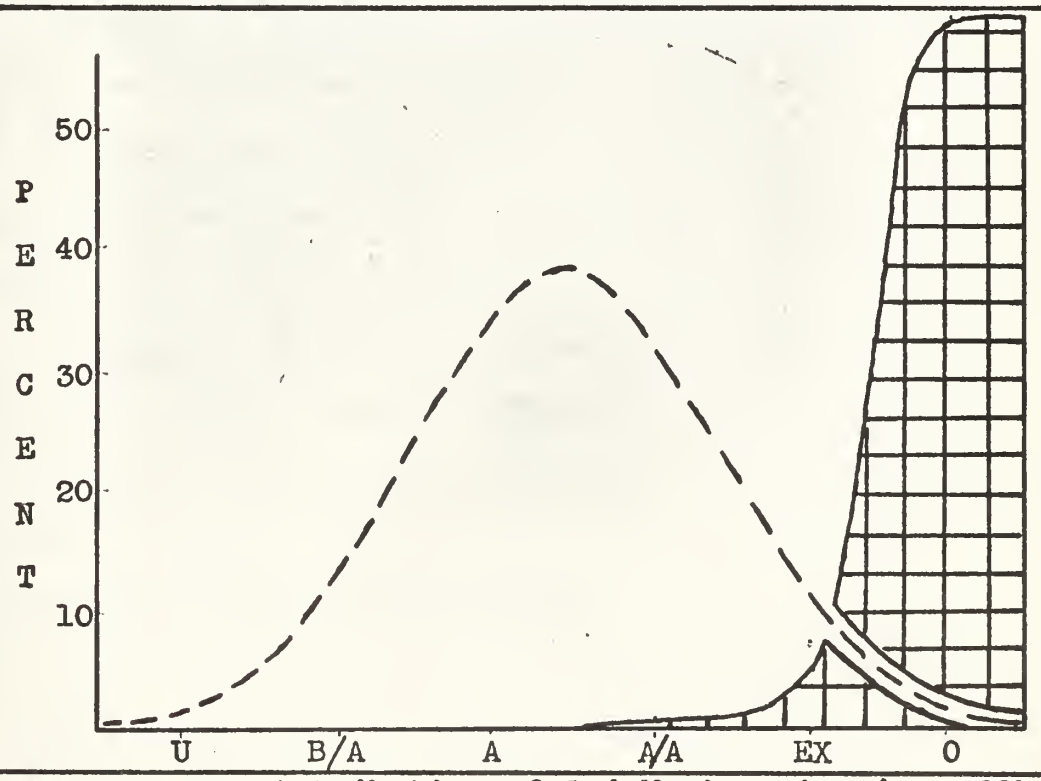


Figure 10h. Distribution of 2nd Marine Air Wing officer (lieutenant colonels) ratings for period Sep 1958 to Apr 1959 compared with normal distribution.

usable discriminations by marking on the lines between marking columns. This practice resulted in a Marine Corps regulation as reported in the Gazette:

> ...CMC (Commandant of the Marine Corps) has ruled that "fence-straddling" by reporting seniors in marking items 16 and 17 of fitness reports is prohibited. The new policy, which stops marking "on the line" between various marking columns (e.g. "Excellent/Outstanding"), will be announced in upcoming Marine Corps Bulletin...[7]

Finally, that comparisons are difficult cannot be denied. To change rating scales in the past was to invite disaster; the Marine Corps' 1950-1952 personnel appraisal decisions are a classic example. And, the frequent past statements of caution which warned of the impossibility of comparing fitness reports (between systems) if we were to change rating scales in "mid-stream" surely had high validity.

No longer is that true. Standard scoring has long been a valid statistical concept. (This paper considers standard scoring of fitness reports in Chapger IV) But, the arithmetic manipulation required in the processing of a large volume of fitness reports, for example, in an effort to achieve standard scoring, was not feasible.

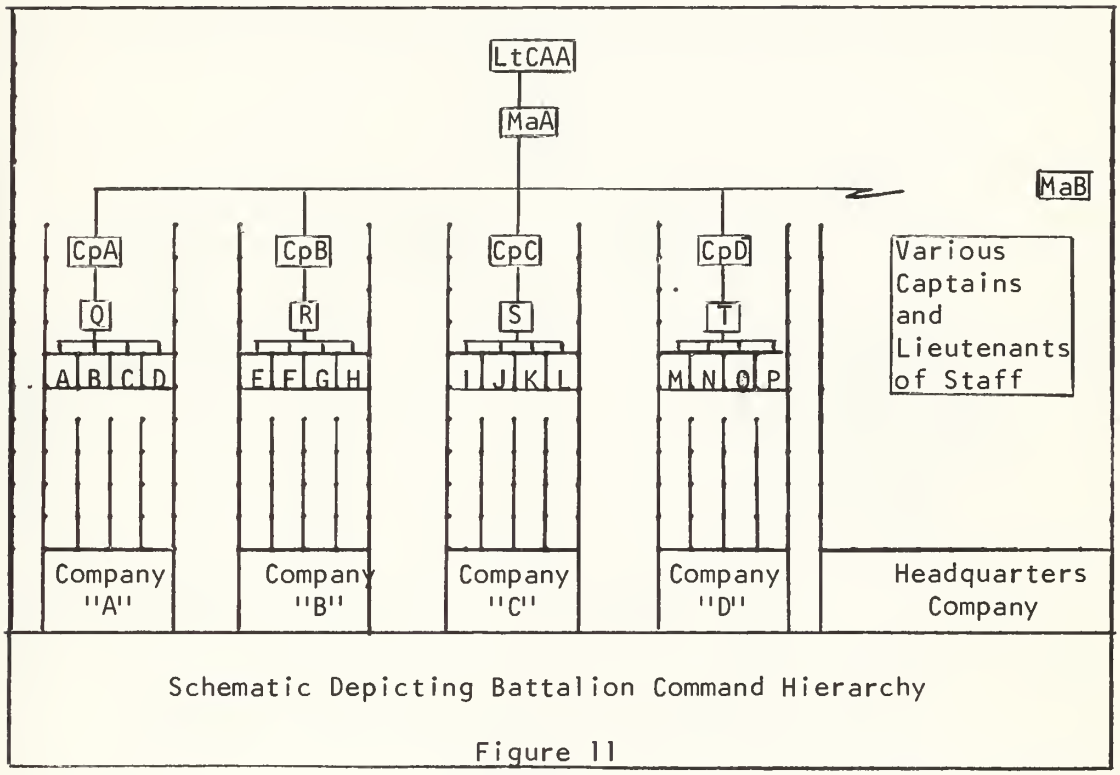
No longer is THAT true. The computer has rendered that infeasibility and the "no change" philosophy a myth. To be sure, change should not be made for change's sake, and caution is yet the order of the day--it always will be.

The Reporting Scheme and Some Problems

Current regulations require submission of appraisal forms (refer to Figure 4, page 17) by the commanding officer of the

[7]Lieutenant Colonel W. L. Traynor (ed.), "Fitness Report Change," Marine Corps Gazette, XLVII (September, 1963), 2.

Marine concerned. For example, let us assume that Lieutenant A is about to have a fitness report prepared in his case. The lieutenant's position in the command hierarchy of his battalion is shown in Figure 11.



Schematic Depicting Battalion Command Hierarchy

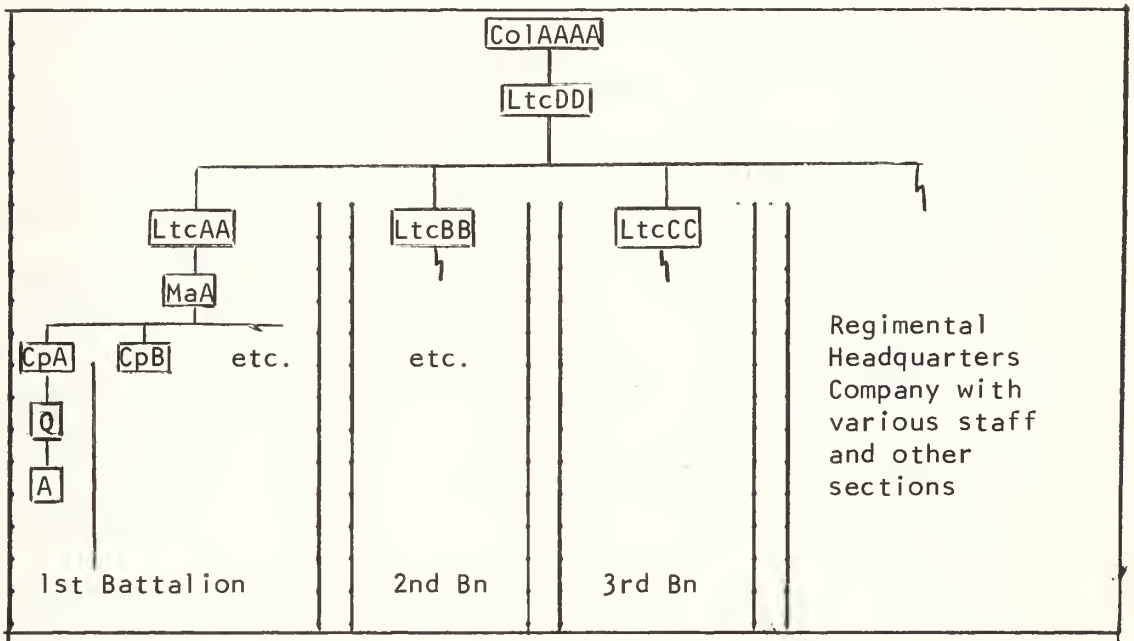
Figure 11

Although techniques surely differ, normally the company commander of Company A, CpA, in informal review with the company executive officer, Q, will prepare a "rough" fitness report upon Lieutenant A. Current instructions say that Lieutenant A will be compared with all officers of the same grade whose professional abilities are known personally by the marking officer.

The company commander then furnishes the "rough" report to the battalion commander, LtCAA, who is charged with the responsibility of preparing the official, permanent report. LtCAA may precisely duplicate the report, he may slightly alter the report as "roughed" by the company commander, or he may ignore the "rough"

entirely. The final evaluation of Lieutenant A rests almost entirely with Lieutenant Colonel AA.

Figure 12 shows Lieutenant A's position in the command hierarchy of the regiment.



Schematic Depicting Regimental Command Hierarchy

Figure 12

To complete the reporting scheme, the official report which LtCAA has prepared is submitted to the regimental commander, ColAAAA, who acts as a reviewing officer. Although the reviewing officer certainly has the prerogative to question the ratings of any or all reports, it may be that the review has more likely become a test of the technical correctness of the report and little more.

Captain B's personal report is likely to be prepared in a "rough" by the battalion executive officer, MaC. As before, LtCAA prepares the final, official report and it is further submitted to Colonel AAAA for review.

It seems safe to suggest that reports for officers are generally made in a similar way regardless of location, rank, duties, or organization.

What lies at the roots of problems which prevail in such a system of appraisal?

It can be reported that the common vagaries of such performance appraisal are word-worn; reference after reference belabors the several pitfalls which are constantly present in the system. Some apply to the mechanics; most apply to the perpetration. And, committed already to acceptance of the Marine Corps' current format, let us direct our attention at this time to the difficulties which the system encounters as result of the interaction of people--marking officers, if you will--with it. We can do this, too, armed with the supporting thought that "the success of a rating plan depends less on the method, or rating form, than on (its proper management)..."[8]

About forty-five years ago, Thorndike investigated and reported the phenomenon called "halo" tendency.[9] It occurs there is a natural tendency for the rater to be influenced in rating one factor by the kind of rating he gives on another factor. In fact, the individual rather tends to give each man approximately the same rating on all factors. If a rater has a general feeling that a man is good, he will rate him high on all factors--and the reverse is true, too. Etnyre likens this to the "'good fat man' suddenly having no weaknesses, including even 'personal appearance' or 'military presence'..."[10]

[8]Williard Howell Thomas, Industrial Psychology, (New York: Holt, Rinehard and Winston, 1958) p. 61.

[9]E. L. Thorndike, "A Constant Error in Psychological Ratings," Journal of Applied Psychology, IV (April, 1920), 25-29.

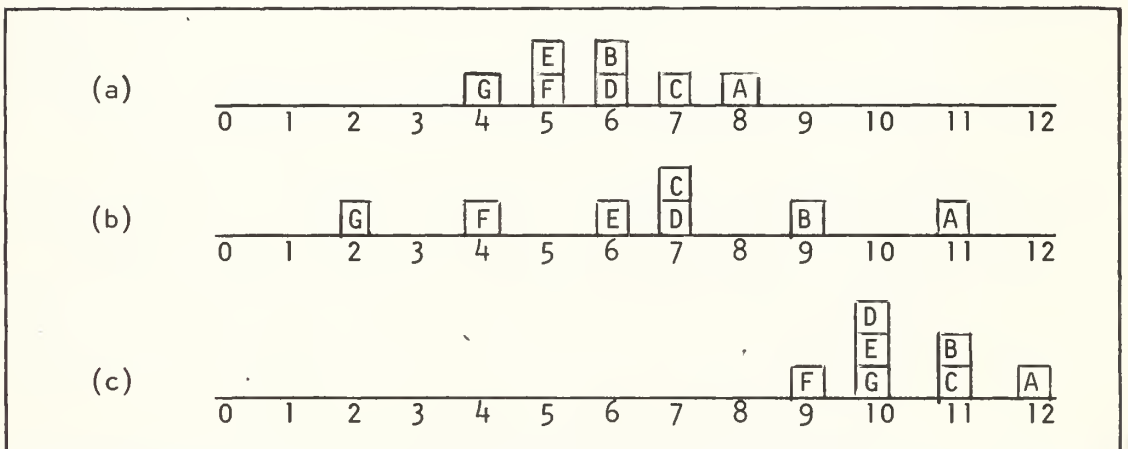
[10]Etnyre, op. cit., p. 58.

Beyond "halo", sets of ratings made by different appraisers will show tendencies on part of some raters to differ from others in a constant manner. Two of these have been identified: (1) the leniency error, and (2) the error of central tendency.

The leniency error refers to those situations in which the rater tends to assign high ratings to most individuals. Infrequently, the "harsh" rater will deliver the opposite trend.

Some organizations have experienced raters who tend to avoid rating individuals high or low, and whose ratings tend always to be centralized about the mean of the scale. Ghiselli and Brown cite an example of three raters appraising seven different individuals.[11] Figure 13, page 38, shows graphically the ratings awarded in these instances.

Figure 13a shows the central tendency of one marker. Figure 13b shows the marker who has discriminated amongst the seven ratees, nearly across the entire range of possible grading. Figure 13c identifies the marker possessing the tendency toward leniency.



Marks Awarded to Seven Ratees by Three Raters

Figure 13

[11] Edwin E. Ghiselli and Clarence W. Brown, Personnel and Industrial Psychology, (New York: McGraw-Hill Book Company, Inc., 1955), p. 93.

To be sure, it is important to observe that A, for example, has been awarded an eight on the one hand while receiving marks of 11 and 12 from the final two markers. To be sure, too, evaluation of the reports with respect to one another has taken on a new dimension. What is the meaning of A's 8 from the first rater as opposed to C's 11 awarded by rater three? Or, more candidly, what is the meaning A's 8 from the first rater as opposed to F's 9 from the third?

But how can a matter like "constant error" of markings be of import to the U. S. Marine Corps appraisal system?

It is not difficult to build an example in terms of Marine Corps fitness reports. Let us suppose that a selection board (for promotion) is in session. Let us suppose, too, that there remains one selection to be made from two remaining candidates. In reducing the variables, let us suppose that the records of the two men in question, Captain A and Captain B, are identical in every way except that they have been marked by different observers. How is one record to be compared against the other in terms of leniency constants of the different observers?

And, if imagination is not our inclination, let us return to the real world. The results of the fitness report survey conducted in late 1959 brought quick action by the Commandant of the Marine Corps. The Gazette reported that Marine Corps Order 1611.3A was "putting the squeeze on officers' fitness reports."[12]

Among other things, Marine Corps Order 1611.3A no longer permitted the ratee to see the report completed upon him. Also, the

[12]Lieutenant Colonel T. N. Greene (ed.), "Fitness Reporting," Marine Corps Gazette, XLIV (March, 1960), 3.

order established new rules for the justification of 'outstanding' reports.

Results from the order were quickly noted. Excluding Division lieutenants, whose percentage of outstanding reports was negligible, and Air Wing lieutenant colonels, the '59 survey had found approximately 31 percent outstanding reports. Yet, the Gazette was able to report, shortly:

> "Its (Marine Corps Order 1611.3A) impact was felt on officer fitness reports for six month period ending 28 Feb 60; only a little more than seven percent were marked 'outstanding.' There was another drop in July when only 6.8 percent of junior officers got the high mark."[13]

But, if the results were quick, they were not exactly lasting, and the Gazette admonished:

> "Since then (July) percentage of officers considered outstanding has been going up. 8.5 percent in August. 13.2 percent in September. ...The facts, Marine. Colorful adjectives won't do..."[14]

One problem solved, or partially solved, frequently begets another in the real-world situation. Mindful of that, and with the fluctuating marking ranges recorded, how does the 'excellent' report of late 1959 compare with the 'excellent' report of February 1960? And how does the February report compare with an 'excellent' report of September 1960?

The answers to those questions can be found. We have long known that standard scoring can work to reduce significantly the inequities suggested in the foregoing examples.

[13] Lieutenant Colonel T. N. Greene (ed.), "GO-I-N-G UP," Marine Corps Gazette, XLIV (December, 1960), 4.

[14] Ibid.

Why, then, has standard scoring not been used within the military? The answer to this is apparently two-part:

(1) it has been impractical, and

(2) there seems to be an almost universal disdain for dealing with numbers.

The impracticality was a result of the myriad of arithmetic manipulations required to execute this on a continuing basis for the entire officer corps. In short, the needed effort would have been staggering. No longer is this true. The increasing availability of electronic computers has reduced the impracticability, even the mechanical difficulty, of the project to easily manageable proportions.

As for the use of numbers, there is much to be said pro and con. Proponents of each frequently reflect less-than-maximum professional maturity. Carl Heyel seems to have well presented both arguments in achieving an appropriate answer to the predicament:

> 'Sound management never gambles--it takes calculated risks.' Thus the president of a far-flung consumer products company reset the tone when an enthusiastic sales manager began urging a "gamble" on a new product. Yet in the next breath, reverting to a somewhat academic presentation...he (the manager) commented, 'That's a good backdrop picture, but let's remember that we can't run this business on statistics."
>
> By steering between the two extremes, this executive was demonstrating the canny judgment and intuitive feel that are such a large part of successful management. His words apply with special force to that important and often perplexing phase of every manager's job--sizing up the present performance and potential worth of department heads and other executives reporting to him.
>
> A great deal of work has been done by researchers concerned with what makes individuals and groups

> tick, and with ways to measure the results of what people do...
>
> The obvious need is to arrive at the proper degree of appraisal, utilizing the fruits of psychological and human relations research and taking full advantage of professional aids...[15]

The use of the computer and standard scoring of fitness reports will be considered in Chapter IV. Meanwhile, let us turn to some considerations of the rater.

The Rater Education Aspect

Universally, it seems, the problems of rating systems are directly traceable to the raters. Three areas of concern immediately arise when consideration of the rater is undertaken:

(1) Feedback to the rater. How does a marker compare his ratings with those of other markers?

(2) What of the rating by one officer? The discussion of this and feedback will be found in Chapter V.

(3) Training of the raters.

Training of the rater has long been a favorite subject of the writers. Early in performance appraisal development, it was not uncommon for an organization to give long and serious thought to the rating scale while ignoring the education of those who were to do the reporting. Is this like building an airplane without training its pilot?

Is it possible that a well-trained group of raters might do a fairly good job with an awkward and poorly designed scale while the best of scales may give disastrous results in the hands of poorly prepared raters?

[15]Carl Heyel, Appraising Executive Performance, (New York: American Management Association, 1958), p. 13.

In their prolific writings, it is not always true that authors agree upon the particularities of performance appraisal. In writings, one matter, though, stands out as a universal requirement for rating systems: the need for training the rater. In this, some become almost adamant.

How well the following quote seems to fit into the constraints which this analysis has accepted:

> "A merit rating program must include specific plans and procedures for training the raters. In my opinion, lack of training of raters is the most usual source of weakness in rating programs. I am not nearly so concerned about the type of rating form to use as I am about the training of raters in use of the form adopted. The feeling is all too prevalent that the way to obtain better ratings is to get a better rating form. It is not surprising that this feeling is common, for if a tool doesn't work it is natural to look for a deficiency in the tool rather than for a fault in the user of the tool. Nevertheless, I believe that if all raters were properly trained, almost any rating form would give reasonably good results..."[16]

The directions for the preparation of the Marine Corps officer fitness report are clear and well defined.[17] Yet, nowhere could the authors find a record of any formal education of Marine Corps officers in the technical aspects of personnel evaluation. Certainly, they are exposed to professional leadership courses, but presumably few marking officers have had any formal introduction to the idiosyncracies of "halo", "central tendency", or "leniency" problems, for example.

Is it significant that such formal education cannot be found? Heyel cautions about "putting too much faith in laymen's probings

[16]Reign Bittner, "Developing an Employee Merit Rating Procedure," in Edwin A. Fleishman (ed.), Studies in Personnel and Industrial Psychology, (Homewood, Illinois: The Dorsey Press, Inc., 1961), p. 105.

[17]U. S. Marine Corps, loc. cit.

into personality and temperament..."[18] And this is not to suggest that the marking officer is a layman in the sense of the promiscuous usage of the word; rather, it is to incite this thought; "Has the system done all it can do to bring the raters to an appropriate level of understanding of their marking system?"

Is it something of an irony that no training has attacked this possible weakness?

Returning to the airplane analogy, not one man has been permitted to fly without training. Neither the interests of the Marine Corps nor the welfare of the man would receive such inconsideration. Yet, can the same be said of fitness reporting? Or, is the interest of the Marine Corps and the welfare of its men constantly placed in the hands of essentially untrained marking officers?

If so, and if there is a need for training, the big question, "How?", appears. It seems that our attention in this area might be directed to three fronts:

a. Personnel evaluation and allied subjects could be included in Marine Corps formal schools curricula. Specifically, the curricula of the Basic School, the Amphibious Warfare School, and the Command and General Staff School at Marine Corps Schools, Quantico, Virginia, could have "personnel evaluation" as a part of their scheduling.

b. The "field" frequently falls prey to misbeliefs about the policies and desires of Headquarters with regard to personnel evaluation procedures. This is, by the way, not to

[18]Heyel, loc. cit.

justify what occurs; this is to identify that it does occur. Examples of this might be "the correction of imbalance between aviators and ground officers"[19] or the "policy of marking on the line between discriminatory blocks on the fitness report."[20] It may be that a Headquarters representative (possibly a member of the Inspector General's team) could keep the "field" current by formal presentation to marking officers of a command during normal duty visits to the respective installations.

c. Personnel evaluation correspondence courses could be prepared by the Extension School, Marine Corps Schools, Quantico, Virginia. Those officers who are not afforded the opportunity for formal schooling at the Schools during specified time limits might be required to participate in these correspondence courses. In fact, it might be a requirement that officers participate in one way or another at least once every five years.

All education could be updated on a continuing basis. One may wonder what might be included in the education to be offered. At least these items:

a. History of military personnel evaluation with emphasis upon recent history.

b. History of civilian personnel evaluation.

[19]This refers to: Lieutenant Colonel W. L. Traynor (ed.), "Duty...Equally Well Performed," Marine Corps Gazette, XLVII (January, 1963), 2. That article states in part: "November's discussion here of Major to LtCol selection results has a major faux pas. This was implication that Selection Board in some way tried to equalize assumed 'imbalance' of NA (Naval Aviators) types vs ground. That just isn't so. You can get a good argument on whether there really is such an imbalance..."

[20]Lieutenant Colonel W. L. Traynor (ed.), "Fitness Report Change," Marine Corps Gazette, XLVII (September, 1963), 2.

c. A survey of personnel appraisal techniques to include study of forms and rating scales or devices.

d. Standard scoring of fitness reports.

e. The quantification of those things which can be quantified.

f. Use and evaluation of Marine Corps fitness reports.

g. Feedback and its meaning (subcourse to use data currently extracted from the system).

CHAPTER III

CURRENT USE OF THE FITNESS REPORT

The Fitness Report

What is the fitness report? Section 15068 of the Marine Corps Personnel Manual[1] begins

> Fitness reports form one of the most important records of an individual's performance of duty and the professional qualifications attained. These reports present a continuous record of the individual's service with the Marine Corps. Fitness reports are vital in determining assignment to duty and in selection for promotion.

Such an introduction certainly does not exaggerate the importance of the fitness report for it is the lifeline of every professional. If the reports fail to convey the favorable impressions required by the promotion board then the career simply terminates.

The reference goes on to state "Each completed report must be an accurate and comprehensive portrayal of the individual reported on."

Reports are required on each officer semiannually (and on other specified occasions). Completed fitness reports are not shown to the officer reported on unless the report is adverse. Marginal, adverse and outstanding reports require special attention and handling. The reference assigns responsibilities for preparation, submission, and review of the report. It provides brief definitions for the adjectives heading each marking column (see pages 17 and 18, for the report form) and cautions, "the reporting

[1]U. S. Marine Corps, Marine Corps Personnel Manual, Officer and Noncommissioned Officer Fitness Reports, May 1964, Chapter 15, paragraph 15068.

senior should consider carefully the italicized definitions listed in section c of the fitness report."[2]

Once completed, the fitness report is reviewed by appropriate authority and forwarded to Headquarters Marine Corps where it is further processed and held for future use by the assignment branch and promotion boards.

Assignment to Duty

The officer being reported on indicates on the report his "preference for next assignment."[3] The preference, as indicated in the reference, is used at Headquarters Marine Corps "For the assignment and transfer of individuals according to the needs of the service..."[4]

The part that the fitness report plays in providing guidance to the detail section in assignment of officers is not the main interest of the paper and will not be pursued at length. However, it is important to make the point that individuals are transferred and assigned "according to the needs of the service," and once assigned to a task, are expected to discharge any and all responsibilities associated with the task as best able, regardless of apparent relative importance or insignificance. Because of this relationship it would seem an individual should receive as much credit for a good performance as a club manager or administrative officer as for a good performance as an operations officer or platoon commander.

[2] Ibid. Paragraph 15068.5.f(3)

[3] Ibid. Paragraph 15068.5.d(8)

[4] Ibid.

Selection for Promotion

Once those administratively eligible to be considered for promotion have been identified, their fitness reports and other pertinent records are sorted and organized for presentation to the promotion board. The board is briefed by staff members of the Personnel Department, and presented the board precept in which the rules and regulations for the conduct of the board are laid down.[5] The board is then ready to begin a difficult task.

Precepts may vary from year to year in keeping with changing policies and conditions, boards may vary or originate methods of selecting the best qualified, but as has been necessary since the time this organization grew too large for each officer to know the other, fitness reports create the image of the officer being considered by the board.

One of the aids used by the promotion board is the Master Brief Sheet (NAVMC HQ 466PD) shown in Figure 14, page 50. The upper portion of the sheet contains identifying information and some pertinent historical data. The lower portion of the sheet contains information extracted from individual fitness reports received by the officer being considered by the board. This information, arranged in columnar form, displays compactly, the command with which the duty was performed, the duty assignment, the officer's rank at the time of the report, the date and length of the reporting period, the reason for the report (type report) and marks assigned for Regular Duties (section 16a of the fitness report), General Value to Service

[5]Lieutenant Colonel W. L. Traynor (ed.), "How Do Boards Work?", Marine Corps Gazette, XLVIII (April, 1964), 5.

MASTER BRIEF SHEET NAVMC HO 666-PD (REV 2-64)

NAME	SERV NO	RANK	DATE OF RANK	C/C	PMOS	AMOS	AMOS	GCT	LIN #	PEBD	AF ACDU DATE	BIRTH DATE	REMARKS / OBSERVATIONS

ORIGINAL ENTRY AF	ACCEPT 1ST COM USMC	DT RK 1ST COM USMC	DESIGNATED MIL PILOT	CURR ACTIVE DUTY BEGAN	DATE CURRENT TOUR BEGAN	EXPIRATION ACTIVE SERV	DT RK 1ST COM LDO	ACDU NAVAL SERV BASE DT	PERM RANK	DATE OF PERM RANK

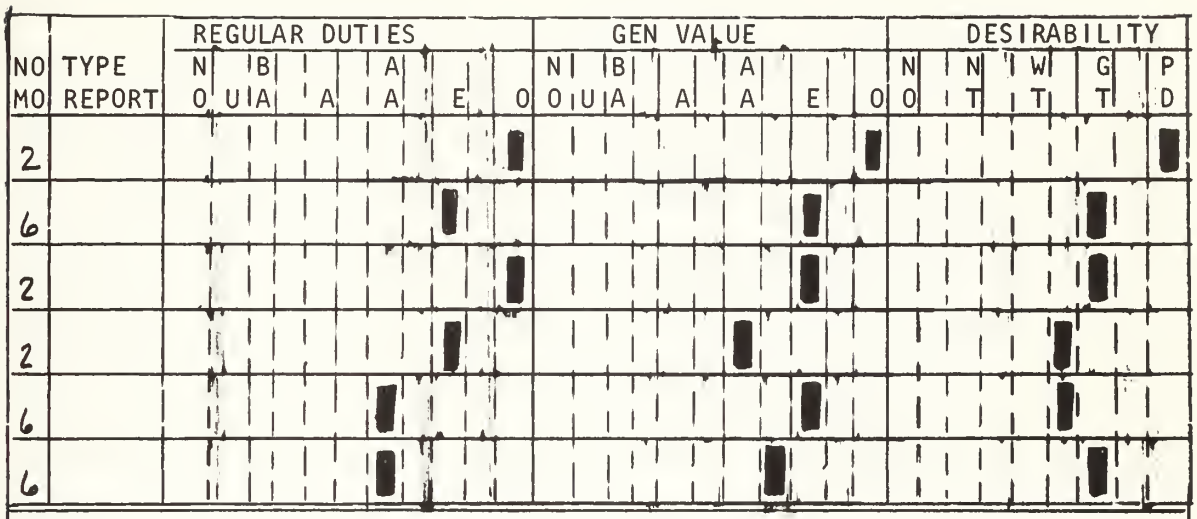
SPECIAL QUALIFICATIONS	FOREIGN LANG	MILITARY EDUCATION				DECORATIONS	
		SERVICE SCHOOL	YR	SERVICE SCHOOL	YR		
CIVILIAN EDUCATION							
INDIVIDUAL FITNESS REPORTS PAGE OF							

COMMAND WITH WHICH JOB PERFORMED TYPE UNIT - UNIT LEVEL	DUTY ASSIGNMENT	RANK	BEGIN DT MON	BEGIN DT YR	NO MO	TYPE REPORT	REGULAR DUTIES NOIUBAAAIEIO	GEN VALUE NOIUBAAAIEIO	DESIRABILITY NOIMWICDO

Marine Corps Personnel Record Master Brief Sheet

Figure 14

(section 19a) and Desirability (section 18). The section of the sheet containing marks is shown in Figure 15.



Lower Portion of Master Brief Sheet

Figure 15

The Master Brief Sheet allows a rapid comparison of marks assigned to an individual over a period of time.

Or does it?

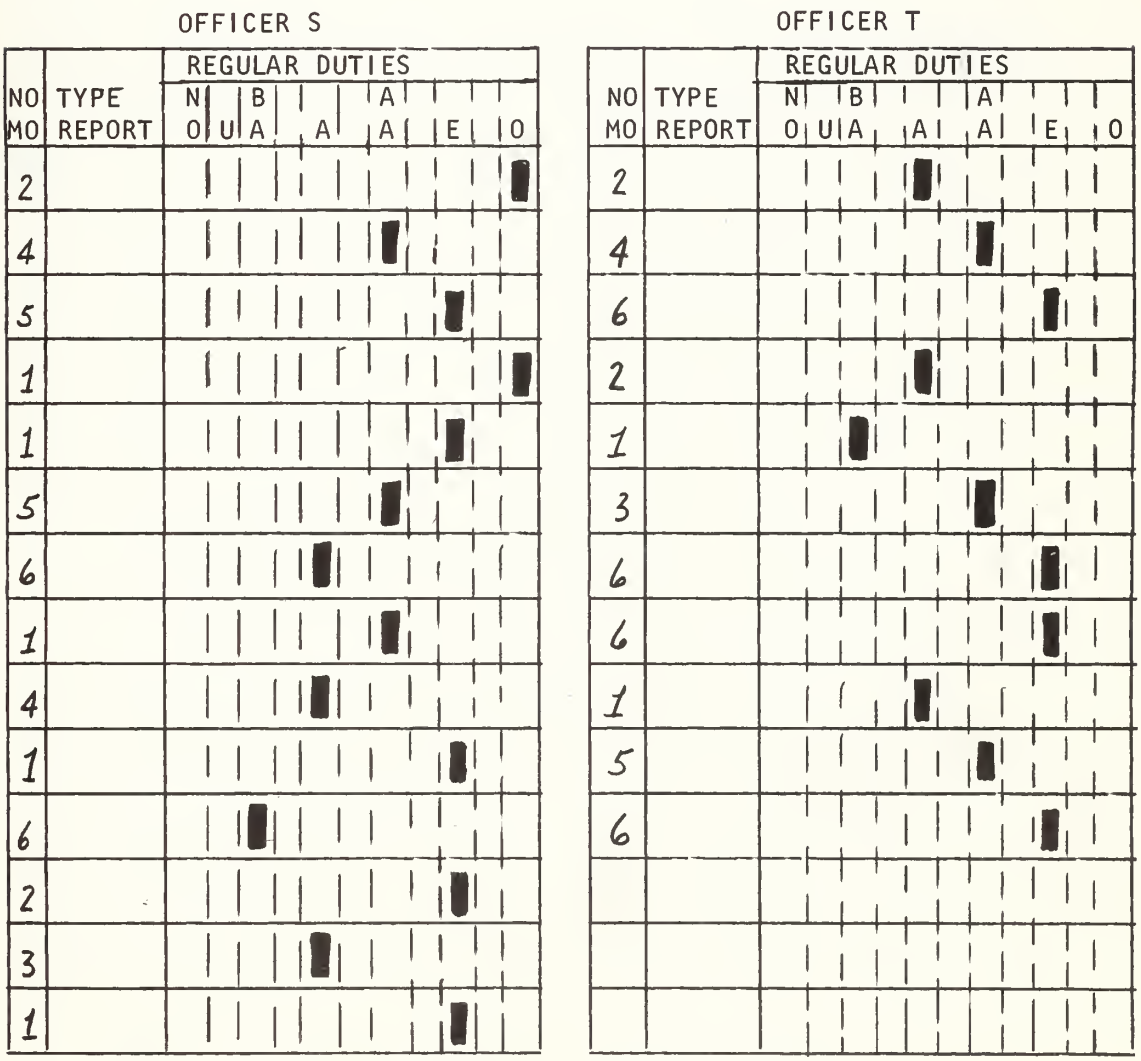
The format of the sheet is well suited for comparison of the ratings, but what of the marks in the columns?

Scanning down the columns in Figure 15, one could certainly be led to believe that the officer receiving those marks was becoming less and less productive; however, if the period covered by the first ten months happened to be 1958 and early 1959, one would have to recall that in 1959 the effort made to re-align marking standards[6] resulted in a significant lowering of marks awarded. A mental note or a comment in the margin should be made to remind us of the possible influence changing standards may have had on the marks subsequent to mid-1959.

[6] Lieutenant Colonel W. L. Traynor (ed.), "Fitness Reporting," Marine Corps Gazette, XLIV (March, 1960), 3.

One might wonder if a change in reporting seniors caused the apparent lowering of proficiency. Whether or not reporting seniors had changed could easily be determined by a quick reference to the original fitness report, but the relative leniency of the new reporting senior could not be so easily established.

Rather than pursue this course further let us attempt to project ourselves into the position of having to decide upon the best qualified of two contemporaries. We will refer to them as S and T. A summary of their marks over the same forty month period is shown in Figure 16. The format is that of the Master Briefing Sheet.



Sample Marks of Officers S and T

Figure 16

For simplicity we are considering the marks on a single trait, assuming that marks on other traits have offered no discrimination between the two individuals.

We might begin our analysis by counting the marks in each column. S has two Os, outstanding marks; five Es, excellent; three AAs, above average; three As, average; and one BA, below average.

T has no outstanding marks, four excellent, three above average, three average and one below average marks.

In comparing the sums, we see each has the same number of below average, average, and above average marks. S has one more excellent mark than T and two outstanding marks where T has none.

Contemporary S looks like a strong contender. We might wonder if either T or S enjoyed the good fortune of serving with a more lenient marking senior than the other. Compensating for a marking senior's leniency or harshness is difficult at best so we will assume for our purposes that the various officers marking reports of T and S are equally lenient and using the same interpretation of each of the marking adjectives.

S still seems to hold an edge over T.

If T and S were being considered for promotion we might be interested in knowing whether their performance had improved as they matured during the forty months covered by the fitness reports. How can we measure improvement? If the marks for the first fourteen months had been awarded in 1958 and early 1959, prior to "putting the squeeze on officers fitness reports,"[7] would it be meaningful to

[7] Ibid.

compare the marks with those received later in the period? Not according to Cronback[8] who states

> Differences in raw scores do not ordinarily present "true" distances. The only way one can meaningfully talk about equal differences is to bring in some practical criterion which provides a standard value.

If we can't compare the marks directly then perhaps we should, as we did earlier, make a mental note to compensate for the differences in standards when we look for an indication of relative performance over a period of time. An even more difficult mental gyration would be the one required to consistently equate or compare marks over a period of time if marking adjectives were changed or replaced by numbers.

Getting back to our problem. It would, perhaps, be best to formalize our recognition of a change in the standards by weighting or adjusting marks of the different periods. Such a step, though certainly helpful in relating the relative performances, will add to the number of variables we must consider in our evaluation. Agreeing that we should make an adjustment which will allow comparisons of the marks of different periods we can leave the problem of "How?" to Chapter 4 and look for other differences in the marks of T and S that will help us in our selection.

Notice that S has 14 marks while T has 11. Should each report be considered equally? Probably not. Other things being equal, a mark of excellent awarded after six months of daily observation should be a more reliable evaluation than a mark awarded after one or two months of observation, especially if the observations were infrequent during the shorter periods. If we decide to weight the length and frequency of observation of fitness reports as well as

[8]Lee J. Cronback, Essentials of Psychological Testing (New York: Harper and Brothers, 1960), p. 71.

adjusting for standards that change from period to period we're developing a fair-sized problem even for handling the simple evaluation of T and S.

Contemplate the magnitude of a promotion board's task where all traits of hundreds of officers over a period of six or eight (or more) years must be considered.

In this case we are considering a single trait for each of the officers T and S. If we were to consider other traits in relation to one another, for instance, compare a mark of "excellent" in "Regular Duties" to a mark of "average" in "General Value to Service," we might be wasting our time. Cronbach[9] illustrates the point

> Willie brings home a report showing that his average in arithmetic is 75, and his average in spelling is 90. His parents can be counted on to praise the latter and disapprove the former. Willie might quite properly protest, "But you should see what the other kids get in arithmetic. Lots of them get 60 and 65." The parents, who know a good grade when they see one, refuse to be sidetracked by such irrelevance. But what do Willie's grades mean? It might appear that he has mastered three-fourths of the course work in arithmetic, and nine-tenths in spelling. But Willie objects to that, too. "I learned all my combinations, but he doesn't ask much about those. The tests are full of word problems, and we only studied them a little." Willie evidently gets 75 percent of the questions asked, but since the questions may be easy or hard, the percentage itself is meaningless. We cannot compare Willie with his sister Sue, whose teacher in another grade gives much easier tests so that Sue brings home a proud 88 in arithmetic. It could be, too, that Willie's shining 90 in spelling is misleading, if the spelling tests deal with the very words assigned for study. A raw score ... , taken by itself, has no significance. It can be interpreted only by comparing it to some standard.

If we are convinced that standards for marking vary over a period of time, that consideration should be given for different

[9]Cronbach, op. cit., p. 70.

lengths and frequencies of observation, and that different traits cannot be directly compared we must make some judgements and some calculations before finalizing our preference between T and S.

CHAPTER IV

STANDARD SCORES

Need for Adjustments

The preceding chapters suggest that ratings may be undesirably influenced by the varying leniency of individual marking seniors, by changing of standards over a period of time and by use of different standards in different organizations. To determine whether there are differences in the rating of personnel some analysis is necessary. Graphs similar to those in Figure 10, pages 30 through 33, and tables like Table II, page 29, are helpful in illustrating the differences. (For more on differences see Scott.[1]) Where it is found that ratings do differ significantly for personnel of different organizations (compare graphs of "Captain-Division" and "Captain-Air Wing," Figure 10) there are two possible explanations. One, it is possible that the differences are real differences and members of one organization are actually better than those of another. Two, the ratings may have been affected by one or more of the objectionable influences mentioned earlier, and the differences are functions of these influences rather than indications of difference in performance. These differences are of little consequence if the ratings are to be used only within the context of the group. If, however, the ratings are to be compared with ratings of individuals in other organizations it is pertinent to judge whether the differences

[1]W. D. Scott, R. C. Clothier and S. B. Mathewson, Personnel Management Principles, Practices, and Point of View (New York and London: McGraw-Hill Book Co., Inc., 1939), pp. 199-203.

are real or not. If it is determined that the differences are not real differences the ratings should not be compared across rating groups unless they are adjusted for the differences.[2]

There are several techniques that can be used to adjust, or "translate,"[3] ratings from different organizations onto a common scale. Some methods that have been applied are:[4]

a. Percentile ranks,

b. Decile ranks,

c. Z score,

d. T score,

e. Stanine Scale, and

f. Forced distribution.[5]

The method presented in this study is the standard score based on the mean and standard deviation.

Standard Scores

99.73% of a normal population lies within three standard deviations of the mean (see page 23). This relationship exists for a normal distribution whatever its standard deviation. As explained by Tiffin[6]

> Thus, regardless of what the mean of a distribution is, or what the magnitude of its distribution, it is possible to express the deviation of any given numerical value in terms of the number of standard deviation units it is above or below the mean.

[2] Ibid.

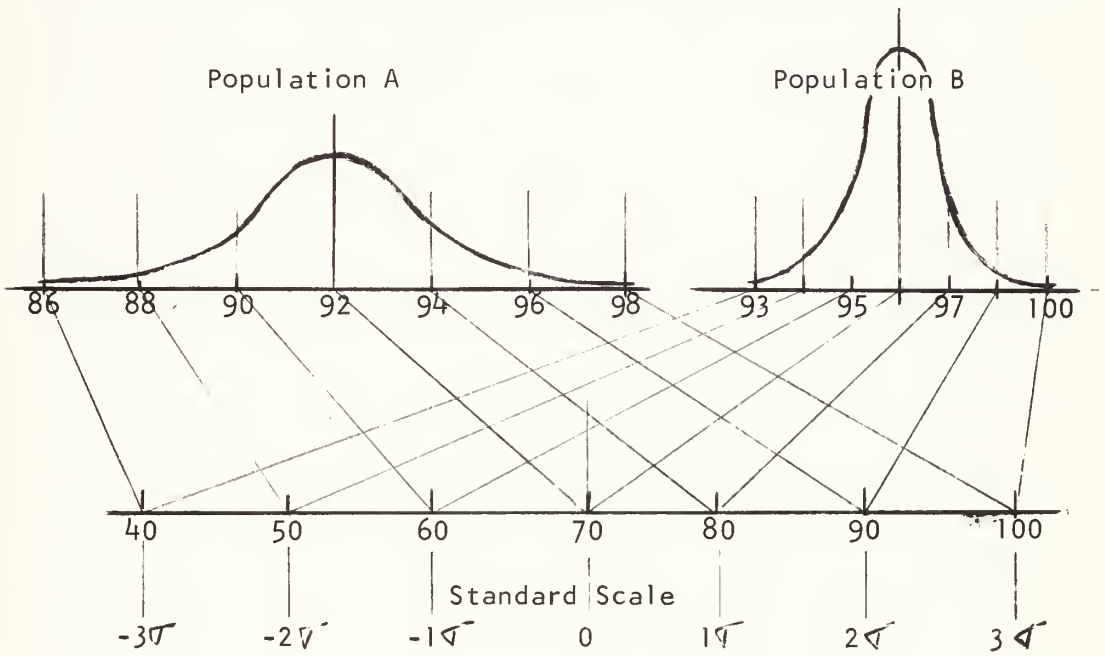
[3] Dale Yoder, Personnel Management and Industrial Relations (New York: Prentice-Hall, 1954), pp. 352-3.

[4] Ibid.

[5] Frank S. Freeman, Theory and Practice of Psychological Testing, (New York: Holt, Rinehart and Winston, 1962), pp. 120-130.

[6] Tiffin, op. cit., p. 236.

Expressing the value of a score in units away from the mean is locating the score relative to other scores in that population. When the unit of measure is the standard deviation we know that a certain percentage of the population falls within a designated number of units. That is, 68.27% (Figure 6, page 23) of the population will lie within one standard deviation of the mean whatever the mean or the value of the standard deviation, etc.



Comparison of Scores on a Standard Scale

Figure 17

Figure 17 illustrates how two normal distributions with different means and standard deviations can be compared. The scale on which they are compared will be called the standard scale. Referring to Figure 17, population A has a mean of 92 and a standard deviation of 2, population B has a mean of 96 and a standard deviation of 1, the standard population measured over the standard scale is to have a mean of 70 and a standard deviation of 10 (The parameters for the standard scale are arbitrarily chosen). Assuming that

populations A and B are similar, that is, have equal talent (or whatever is being measured to cause the distributions graphed in Figure 17) we can equate a score of 92 in population A to a 96 in population B and both are equal to a standard score of 70. Other scores can be visually compared by tracing the lines connecting comparable points on each scale. In the illustration, the lines connect only those points at whole standard deviation units from the mean. Discrimination can be further refined by using fractional multiples of the standard deviation.

Note that a score of 96 is meaningless unless we know to which population it belongs or on which scale it is measured. Populations A and B cannot be directly compared, but when "translated" to a standard score by use of the means and standard deviations they can be appropriately equated.

Various methods for computation of mean and standard deviation are well documented in texts.[7] The mean is computed by summing the various scores and dividing the sum by the total number of scores considered. Once the mean is known, the standard deviation can be computed. The appearance of the formula "makes it difficult to see just what the standard deviation means, but in effect, it is an average of the deviations of person's scores from the group mean."[8] The standard deviation can be computed using the following equation:[9]

[7]Taro Yamane, Statistics, An Introductory Analysis, (New York, Evanston, and London: Harper and Row, 1964), pp. 35-74.

[8]Lee J. Cronback, Essentials of Psychological Testing, (New York: Harper and Brothers, 1960), p. 80.

[9]Yamane, op. cit., p. 63.

$$\text{Standard Deviation} = \sqrt{\frac{(X_i - \bar{X})^2}{n}}$$

where X_i is the i^{th} score,

$\bar{X}$ is the mean score,

and n is the total number of scores considered.

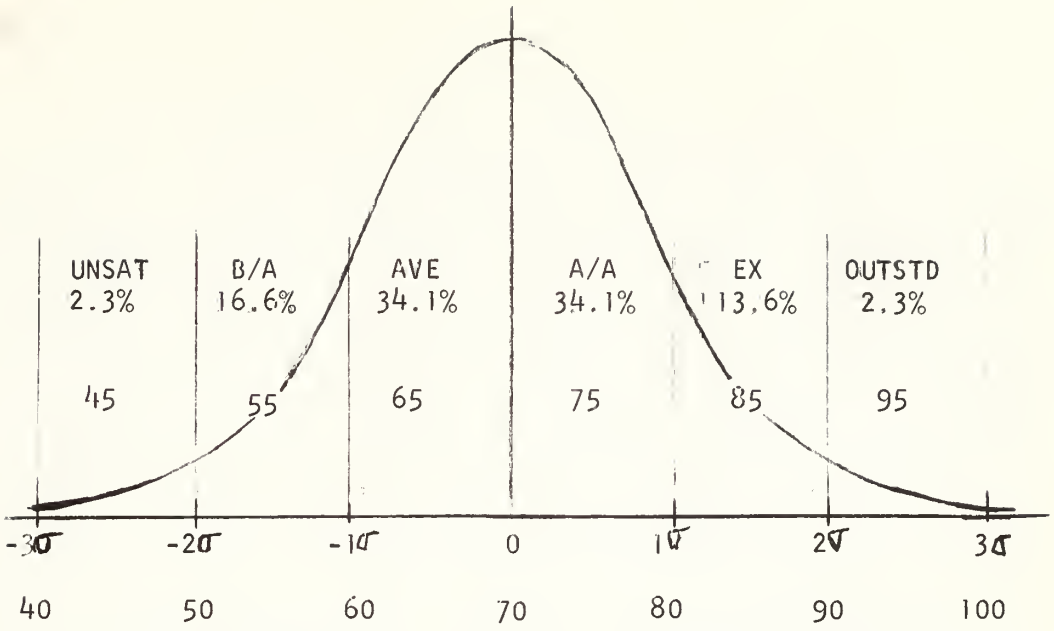
Though neither computation is complicated, both require considerable time if accomplished without the aid of an electronic computer.

As It Applies to Fitness Reports

One might wonder how standard scoring can be applied to a rating scale that uses words rather than numbers to discriminate between levels of performance. In particular, how can we use standard scoring with the Marine Corps Fitness Report?

Recall the discussion in Chapter II, page 22, concerning the expectations of psychologists that most human traits have distributions approximating the normal distribution. Let us assume that psychologists have convinced us that the abilities of Marines to perform duties should approximate a normal distribution and should so reflect in fitness report markings. Further, let us assume we want to use the rating adjectives that are used in the current fitness report. The adjectives themselves may not be particularly well chosen for this use, as demonstrated on page 28, but the six graduations from "unsatisfactory" to "outstanding" can be used handily to represent the six standard deviations about the mean that encompass 99.7% of the normal population.

Redrawing Figure 8 and adding a numerical scale produces Figure 18.



A Numerical Scale Associated with the Distribution of a Normal Population

Figure 18

The mean for the adjective scale lies between the "average" and "above average" marks. By assigning a mean of 70 and a standard deviation of 10 to the numerical scale, the six adjective discriminations (and so 99.73% of the population) are included in the scale from 40 through 100.

A problem becomes apparent. The numerical scale can be subdivided into many discriminations by measuring fractional values of the standard deviation. The best we can do with our six adjectives is to associate a single value to each. By assigning to each adjective the value that falls midway between the limits of the discrimination, we have an average score representing all the possible scores within a particular standard deviation. About 34.1% of the marks should be "above average," with a corresponding score of 75; 13.6% marks of "excellent," with scores of 85, etc. Table III shows the assignment of numerical values to the evaluation adjectives.

TABLE III

NUMERICAL VALUES OF MARKING ADJECTIVES

Marking Adjective	Unsat.	Below Ave.	Ave.	Above Ave	Exec.	Out-Stand.
Numerical Score	45	55	65	75	85	95
	40	50	60	70	80	90

With numerical values assigned to each rating, it is possible to compute a mean and standard deviation for the distribution. Having the means and standard deviations of several groups, we are then able to compare the individual's scores in each group as in Figure 17.

This technique might be used to compare the fitness reports awarded prior to 1958 to those awarded after 1958 by determining the means and standard deviations for each trait for each marking period, converting to standard scores, and comparing.

Let's return to contemporaries S and T discussed in earlier paragraphs. When we compared the number of marks each received in the various marking categories, S had one more mark of excellent and two more of outstanding than did T. If we simply count the marks in each category and compare the totals, S will, in effect, be receiving credit for more work than T. That is, S has received 14 payments (fitness reports) and T only 11. Further, simple summing as above, can award the same payment for one month of outstanding work as for 5 months. An individual rated "unsatisfactory" for five months and "outstanding" for one month, has the same over-all score as one with five months of "outstanding" and one of "unsatisfactory." Certainly the two records are not equal.

We should recognize that an unsatisfactory report would result in special actions and not likely be compared as mentioned. However, the same analogy can be made with "above average" and "outstanding" marks, or whichever ratings one desires to compare. The point to be made is that the comparing of numbers of marks in each column does not necessarily compare performance. It is essential to consider the duration covered by the mark as well as the mark itself.

We mentioned in the previous section that a marking senior would likely have a better opportunity to observe an officer during a six months period than during shorter periods. This consideration strengthens the argument in favor of increasing the influence of reports covering longer periods.

If we are convinced that time should be considered when evaluating reports, we are faced with the problem, "How?"

Informal procedures and arbitrary assignment of weighting factors aren't reliable enough where so much is at stake. Whatever weights are assigned should be a matter of record so that application is consistent, control is maintained, and changes can be made if it is felt that the relative importance changes. To assign a weight to an adjective has little meaning - the scores must be quantified before weights are assigned. It is not necessary that the marking officer assign a number for a grade. The assignment of numbers can be accomplished at Headquarters. As mentioned earlier, the numerical value assigned a rating adjective is a value judgement made as policy; there is no magic number. For the purpose of this paper we will assign values as shown in Table III.

The relative weights assigned to reports covering periods of different lengths are also value judgements and should be established by policy. Once established they can be changed as the feeling towards their relative importance changes. To make the problem simple for ourselves, let us make the weight of a report equal to the number of months covered by the report. This arrangement makes a two month report twice as influential as a one month report, a six month report three times as influential as a two month report, etc. To illustrate the use of the weights we shall compute the mean score for three reports of varying lengths as shown in Figure 19.

Case 1

Grade	No. of Months and Weight	Product
80	6	6 x 80 = 480
80	2	2 x 80 = 160
80	1	1 x 80 = 80
	9	720

$$\text{Weighted Average} = \frac{720}{9} = 80$$

Case 2

Grade	No. of Months and Weight	Product
70	6	420
80	2	160
90	1	90
	9	670

$$\text{Weighted Average} = \frac{670}{9} = 74.4$$

Computation of Weighted Average

Figure 19

Where the scores of T and S (see Figure 16, page 52) are weighted and averaged, as in the preceding paragraphs the results are as shown in Figure 20.

Officer S

Grade	Months	Product
95	2	190
75	4	300
85	5	425
95	1	95
85	1	85
75	5	375
65	6	390
75	1	75
65	4	260
85	1	85
55	6	330
85	2	170
65	3	195
85	1	85
	40	3060

$$\text{Weighted Average} = \frac{3060}{40} = 76.5$$

Officer T

Grade	Months	Product
65	2	130
75	4	300
85	6	360
65	2	130
55	1	55
75	3	225
85	6	510
85	6	510
65	1	65
75	5	375
85	6	510
	40	3170

$$\text{Weighted Average} = \frac{3170}{40} = 79.2$$

Computation of Weighted Averages for Officers S and T

Figure 20

The results of the weighted averages indicate T has a more favorable record than S. This is a reverse from what earlier considerations led us to suspect.

Analyzing the marks by months of performance at each level produces results that agree with that of the weighted average. Table IV indicates the number of months the contemporaries T and S received each of the various markings.

TABLE IV

MONTHS OF PERFORMANCE AT EACH RATING

	Number of Months					
Rating	U	B/A	A	A/A	E	O
Contemporary						
S	-	6	13	10	10	3
T	-	1	5	12	24	-

The excellent rating dramatically illustrates the importance of weighting reports according to time. When we counted the various number of excellent ratings each received, S had one more than T, and appeared stronger at that level; but looking at the length of period covered, we find that T received a mark of excellent for twenty-four months of the period and S only ten months, a multiple of almost two and one-half in T's favor.

We should remember at this point that weighting of marks is valid only if the marks are from the same scale. This means, of course, that prior to using the weights, the marks on the reports must be converted to a standard scale.

A few years ago, computation of this type for a group the size we are considering, would have been prohibitive. Today the electronic computer can do the job with relative ease. (Appendix A

describes a computer program executed utilizing ficticious fitness report marks.)

At this point, one might question the interpretation of a score of 76.5 or 79.2 when no such scores were available on the input scale. Or, a related question, is 79.2 a higher "above average" mark than 76.5? Such questions can be partially answered by asking if two "excellent" and one "outstanding" reports result in a better average rating than three "excellent" reports for the same period. The answer is yes, of course, other things being equal.

The averages 76.5 and 79.2 are simply the relative standings of T and S based on the marks awarded by their seniors and the relative importance placed on observation time by established policy. This type of placement is not unlike the placement derived by comparing varying combinations of "average," "excellent," "above average," etc. What is gained by using formally-adopted weights and mathematical computation is a system more precisely responsive to values (weights) declared appropriate in directives, a reduction in the amount of subjective adjustment, and a capability of accurately reflecting the effects of varying weights assigned to variables.

Earlier we mentioned that a report completed during a period of close observation should be a more accurate appraisal than a report completed for a similar period if observations of the reportee by the reporting senior were infrequent. Adjusting for frequency of observation can be accomplished in a manner similar to that described for weighting the duration of a report. Weights would be assigned to each of the three categories of observation

marked in Section 15A of the fitness report. The weights, assigned by directive, would reflect the current feeling of their relative importance. We might remind ourselves that these weights would not be assigned by the marking officer on the fitness report. In fact, it would not be necessary, or even desirable, that the marking officer be aware of the weights. All computations should be made at a central point to ensure consistency, and avoid duplication.

As an example of how the consideration of both duration and frequency of observation would effect the appearance of a weighted average, let us set up an example. We can arbitrarily assign numerical values to each degree of observation for our example. Let us assign weights as follows:

Weight	Category
3	Daily contact and close observation
2	Frequent observation
1	Infrequent observation

A sample computation using the above weights and the weights previously assigned for the duration of observation is shown in Figure 21.

Grade	No. Months and Weight	Freq. of Observation Freq.	Weight	Composite Weight	Product
80	6	Daily	3	6 x 3 = 18	1440
80	2	Infreq.	1	2 x 1 = 2	160
80	1	Freq.	2	1 x 2 = 2	160
				22	1760

Weighted Average $\frac{1760}{22} = 80$

Grade	No. Months and Weight	Freq. of Observation Freq.	Weight	Composite Weight	Product
70	6	Daily	3	6 x 3 = 18	1260
80	2	Infreq.	1	2 x 1 = 2	160
90	1	Freq.	2	1 x 2 = 2	180
				22	1600

Weighted Average $\frac{1600}{22} = 72.7$

Weighted Average Considering Duration of Report and Frequency of Observation

Figure 21

It has been well established that the degree of leniency varies between marking officers. Adjusting of fitness reports to compensate for individual peculiarities is worth some consideration. Assuming that an unusually high or low rating of a group is the result of a marking officer's tendency rather than an indication of exceptional performance, fitness reports prepared by different marking officers can be converted to a standard scale and compared. If however, the marks represent a real difference and the personnel of one group are better than the other, then a conversion is not appropriate. There are some groups, perhaps the Basic School Staff or a special task section, that are particularly good. To insist that the marking officer for such a group award a mark of "average" to an officer for an "excellent" performance because

that officer is a member of an exceptional group is at least as bad as awarding an inflated mark to one not deserving.

It is relatively easy to allow for a special group by raising or lowering the group mean and redistributing the scores of the group about the new mean. The major problems in this case are; one, identifying the special group; two, establishing precisely how much different the group is from the over-all population. Once these two judgements are made the standard score may be effectively utilized.

We have mentioned only a few of the traits that are marked on a fitness report. Whether, and how the other traits on a report should be considered is another study. It is very difficult to imagine the problem of mentally evaluating the twenty-two marks on each fitness report for each individual of such a large group, even without considering weights. Making adjustments for the frequency of observation, the particular leniency of each reporting officer and the changing of standards makes evaluation by the mental process slow and difficult at best; subjective, or arbitrary under less ideal circumstances. The requirement for comparison cannot be eliminated nor should proper weighting be avoided. Use of standard scoring and modern computing techniques can reduce the problem of considering all of the traits (if such is desired) to a manageable task. Appendix A presents workable computer programs prepared to compute and print out means, standard deviations, and standardized reports.

CHAPTER V

MORE PROBLEMS AND THE RATER

What of One Marker?

After his training, or lack of it, the rater's personality seems most to be reflected in the problems of any rating system. Leniency of rating, for example, is the most common weakness of the systems. Of course, if all raters were equally lenient, the inequities would cancel out; comparisons would be made on a common scale; and the system would work precisely as it should, the inflated ratings having no bearing at all. But, when markers display different degrees of leniency, the system, as we have seen before, falls apart.

A first question here seems to be: why does leniency occur? How does the personality of the rater enter into the effort? Not surprisingly, a great deal of professional energy has been expended in attempting to answer those questions. Perhaps McGregor strikes close to the heart of the matter with this outlook:

> The conventional approach (to personnel appraisal), unless handled with consummate skill and delicacy, constitutes something dangerously close to a violation of the integrity of personality. Managers are uncomfortable when they are placed in the position of "playing God." The respect we hold for inherent value of the individual leaves us distressed when we must take responsibility for judging the personal worth of a fellow man. Yet the conventional approach to the appraisal forces us...to make such judgments...No wonder we resist.[1]

[1]Douglas McGregor, "An Uneasy Look at Performance Appraisal," Harvard Business Review, XXXV (May-June, 1957), 90.

That's one approach. Other authors are not so lenient in appraising the rater's position and the explanation of his easy marks. Bass, for instance, quoted Thorndike[2] and Glickman[3] in suggesting these motivations of the rater:

> As Thorndike and Glickman have noted about the lenient rater:
>
> 1) He may feel that anyone under his jurisdiction who is rated unfavorably will reflect poorly on his own worthiness.
>
> 2) He may feel that anyone who could have been rated unfavorably had already been discharged from the organization.
>
> 3) He may feel that a derogatory rating will be revealed to the ratee to the detriment of relations between the rater and the ratee.
>
> 4) He may rate leniently in order to win promotions for his men and therefore indirectly increase his future control of his subordinates by earning a reputation as a superior with 'influence upstairs.'
>
> 5) He may be projecting.
>
> 6) He may feel it necessary to always approve others in order to gain approval for himself.
>
> 7) He may be operating on the basis: 'Whoever associates with me is meritorious; therefore I am meritorious.'
>
> 8) He may rate leniently because there exists in our culture a response set to approve rather than disapprove.[4]

Sometimes, if inflation (or deflation, for that matter) exists, it is the result of "plain old bias." It seems something of an understatement to say that this is probably the

[2]R. L. Thorndike, Personnel Selection. (New York: John Wiley and Sons, Inc., 1941).

[3]A. S. Glickman, "Effects of Negatively Skewed Ratings on Motivations of the Rated." Personnel Psychology, VIII (Spring, 1955), 39.

[4]Bernard M. Bass, "Reducing Leniency in Merit Ratings," Personnel Psychology, IX (Winter, 1956), 369.

most word-worn of all the human difficulties in evaluating other humans. Typical of the comments in current literature is this:

> The bias of the rater may occur in a number of ways--and it may significantly influence ratings. All of us have our share of prejudices...some supervisors are favorably or unfavorably impressed by employee characteristics that are not related to job performance or potential growth in an organization. For instance, a supervisor may be prejudiced toward workers who hold similar religious beliefs and against those who hold markedly different ones. Although this supervisor is probably unaware of his bias--he knows only that he likes or dislikes a particular employee--it will tend to influence his rating under the merit-rating plan.[5]

Nor have the military publications maintained a silence about the rater problem. Colonel Hovell, USA, makes some strong points:

> One common cause of our troubles is an inverted sense of values. As raters, we appear less anxious to do justice than to keep our subordinates happy. This is evidenced by our tendency to award them high ratings which frequently they do not deserve...
>
> A second cause (of the rating problem) is our short-sighted sympathy. We are inclined to protect and favor the underdog, particularly when he makes a lusty effort. This leads us to submit or approve too many glowing reports of mediocrity...
>
> The main cause of our difficulties, however, is our lack of moral courage. Now I do not imply that all or most of us are cringing cowards. But all too many officers, including some who have proved themselves fearless in combat, shrink from standing up staunchly to their rating responsibilities. They recognize the faults and limitations of their subordinates, but having failed to point out these deficiencies for correction as they occur, they compound the injustice by also failing to acknowledge these shortcomings when rendering efficiency reports.[6]

[5]William B. Wolf, The Management of Personnel, (San Francisco: Wadsworth Publishing Company, Inc., 1961). p. 231.

[6]Bergen B. Hovell, Colonel, USA, op. cit., p. 25.

In an effort to overcome these rater difficulties, the U. S. Army, for example, instigated in their 1961 system the requirement for the endorsing officer to rate the ratee also. Figure 1, page 5, shows the scheme. In view of the current unrest within the Army concerning their reporting problems, it would seem that the system has been less effective than desired.

Civilian substitutes for the single rater exist, too. The need and manner are well documented. Hepner says,

> To prevent unfair and erroneous estimates, it is necessary to have at least three persons rate each employee. No matter how impartial or intelligent the rater may be, he is apt to commit serious errors.[7]

Committee ratings, as the multiple ratings are sometimes identified, have many advantages. The one most frequently cited is that "they bring several viewpoints to bear on the rating and offset the immediate supervisor's special bias."[8] Tiffin, long considered expert in industrial relations, supports this with "...a procedure that increases the accuracy of ratings is the conference..."[9]

And, finally, Hepner in a later work adds some new dimensions in saying:

> The committee or group approach to appraisal review systems is gaining. The typical executive does not want to be the only person to evaluate a man. In the committee approach, the group consists of personnel specialists and senior executives, including the man's immediate supervisor...The committee approach

[7]Harry W. Hepner, Psychology Applied to Life and Work, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1956), p. 362.

[8]George Strauss and Leonard R. Sayles, Personnel: The Human Problems of Management, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1959), p. 357.

[9]Joseph Tiffin, Industrial Psychology, (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1952), p. 357.

> eliminates tendencies toward personal prejudice. It also takes a great load off the supervisor. Instead of saying 'I think. . . .' he can now say 'We believe. . . .'[10]

Theoretically, the committee system seems to offer the opportunity for improving some of the defective areas of Marine Corps officer evaluation. Immediately, though, a first counter-thought defends the commanding officer's domain. He alone is responsible for the success or failure of his unit and, traditionally, he alone is considered in best position to judge those who contribute to its success or failure.

But the counter-counter question persists: "What does the record show, what has been the success of the system?"

To be sure, absolutely no bit of command authority or responsibility can be denied to the commanding officer, just as none is denied at this time. Yet it seems that precedent for a group appraisal method of personnel evaluation is already well established within the U. S. armed forces, and it is accomplished with no loss of command authority or responsibility. The reference here is to the system of military justice provided under existing federal regulations.

Daily, boards of evaluation called court-martials appraise the activities of a limited number of personnel and the worth of those individuals for attempted rehabilitation. In this area, all matters of such importance as to require confinement beyond one month (or similar punishment) of the individual is placed before the judgment of a board of officers of the organization

[10]Harry W. Hepner, Perceptive Management and Supervision, (Englewood Cliffs, New Jersey: Prentice-Hall, 1961), p. 329.

under the full command authority and responsibility of the unit's commanding officer. This is as opposed to being placed before the commanding officer himself.

Does it not seem ironical that this short term welfare (one month) of the Marine Corps and of its worst malcontent is protected by the jury system while the eternal welfare of the Marine Corps and the eternal welfare of a vast number of its productive citizens are placed in the hands of essentially the single marker, the natural vagaries of whom have been recognized and substantiated for years?

Is there anything to be gained by having a "Board of Evaluation" as opposed to having a "Reporting Officer?" If so, how might such a Board be administered?

If the details and advantages of such a system seem vague, then let us build an example using the chain of command in the reporting scheme discussed in Figure 11, page 35.

The scenario might again find Lieutenant A and his contemporaries approaching the end of a reporting period and their records in need of fitness report submission. The responsibility and command authority for the preparation of those reports yet remains with the battalion commander, LtCAA. Now, however, as opposed to awaiting a "rough" report, a product of the somewhat myopic outlook of Capt A, LtCAA convenes the battalion Board of Evaluation and awaits its formal report.

The battalion Board of Evaluation, in this case, might be composed of the battalion executive officer, Major A (MaA), who has frequently observed Lieutenant A in roles as, among other things, Investigating Officer, Battalion Duty Officer, and counsel

in special court-martials. It includes Major B, the battalion S-3, who has frequently used Lieutenant A in role as battalion Range Safety Officer and who has frequently observed the Lieutenant as an instructor in battalion classes and training exercises.

All of the company commanders are on the Board, including Capt B who has frequently seen Lieutenant A in tactical exercises when Lieutenant A's platoon tied-in on Company B's flank. Capt C is there, too, and he well remembers the performance that Lieutenant A recently gave with him on a battalion board of survey. Capt D was Regimental Duty Officer one night when Lieutenant A was Officer of the Day; how well Capt D remembers how Lieutenant A had handled a pretty nasty affair at the Service Club that night.

The example might be extended indefinitely. The point would be the same: the relevant information which could be assembled concerning the performance of Lieutenant A would be far greater than that which Capt A will present the Board concerning the Lieutenant. The Board will "bring several viewpoints to bear on the rating and offset the immediate supervisor's special bias," whether he be biased favorably or unfavorably.

And, as Lieutenant A is discussed, so, too, will all the lieutenants of the battalion be discussed and COMPARED. Eventually, the Board will arrive at findings upon the appraised worth and potential of the lieutenants. Its formal report will be prepared and presented to the convening authority.

As with the findings of a court-martial which he had convened, LtCAA might have certain options in accepting or rejecting the findings of the Board. LtCAA prepares the official report,

using the Board's report as a guide. The report submission is to the Reviewing Authority, ColAAAA (see Figure 12, page 36) as previously.

The scheme could be perpetuated up through the ranks in accomplishing evaluations for all officers and, for that matter, down through the ranks in accomplishing the required reports for non-commissioned officers.

Feedback to the Rater

Chapter IV has set the stage for consideration of a final and most important aspect of personnel evaluation.

Throughout the literature, there has been strong implication, that raters find it easy to rationalize the shortcomings of their own efforts in terms of what they think other raters are doing.

We know, too, that it is not uncommon to hear the comment, "everybody gets outstanding marks." In fact, the 1959 survey of ratings found this comment not too far from being correct. It seems reasonable to conclude that some part of high markings comes as a result of the individual marking officer not wanting to "hurt" subordinates by his totally proper evaluation when he suspects others are inflating the marks of his subordinates' contemporaries.

The important theme, almost entirely, of our work has been centered on the thought of making better use of our marking officer as a measuring device. To make him better is a difficult task at best; but to do so must be virtually impossible when marking officers are calibrated on different scales as results of their differing experiences.

Add to the fact of the marking officers' rationalizations, the thought that there is no reason to hope that separate marking officers will attach the same meaning to phrases like "above average captain" or "excellent lieutenant." The markers experiences are different; their standards are different. Yet, not such a hope, but such an assumption is the very heart of the Marine Corps appraisal system.

Lieutenant Colonel A. V. Arnold, Jr., USA, has used an ingenuous example for better understanding of this problem. It seems worthy of reproduction here. He writes:

> At present the rating task assumes that the ratio between any two pairs of assigned scores will be equal if the ratio of the performances eliciting those scores is equal. In other words, although the input and the output may not be related 1:1, there will be a consistent predictable relationship. This assumption is a fair one and is supported by evidence on the capability of man from psychophysics. The second assumption of the rating task...is that the rater is aware of this personal input:output relationship---or bias, if you will---and knows how to eliminate it from his ratings...
>
> Suppose that efficiency were based on height and that tape measures and similar instruments did not exist, what would a rater do? First, he would hold a sizing formation in which the rated officers are aligned by height. Then he would try to establish some proportion by which the tallest officer was taller than the next one and so on and then assign appropriate absolute numerical values. Second, he would establish the average or mean height of the officers rated and then look around at what other raters are doing in an attempt to peg the average to a common standard.
>
> The analogy oversimplifies the problem, but I maintain that the rater, if he is to report his perception accurately, must make such a simplification internally. Magnitude estimation is man's most accurate and surprisingly reliable mode of sensory discrimination. The rater must be encouraged to establish an internal ratio scale with his own units and, after his judgment is completed, to transform it to the standard scale. By ratio

> scaling he can simplify his judgments and enhance their reliability. The point is clear that the "look around" or feedback is vital to elimination of rater bias.[11]

There is definitely a need for some method which the marking officer can use to "calibrate" rather than to do so by speculating what others are doing; he should not have the opportunity to rationalize his efforts.

Probably, the best way that calibration of the marking officer could be accomplished would be to have every rating officer mark every officer of some selected group. The results of that rating could be tabulated and the tabulations furnished to all. Each officer could then have a better understanding of how he measures an individual compared to how the group measures the individual.

Best, though it may be, it is obviously out of the question to execute a feedback program that way.

To approach the problem from another angle, wouldn't the composite tabulation of all performances establish a standard against which the rater could calibrate himself? Could it suggest, too, to the reviewing officer some places where more training of the marking officers would be required?

Let us suppose that the Commanding General of the 2nd Marine Division were to receive a semi-annual report of officer evaluation for his regiments which looked something like that in Figure 22, page 83; in this case the report is for those officers of grade of captain. For simplicity sake, only the regiments have been included in the example.

[11]Lieutenant Colonel A. V. Arnold, Jr., "Feedback to the Rater," Army, XV (July, 1964), 54.

The example, incidentally, is not intended to be a dramatic one; nor is the form displayed necessarily considered to be optimum. This is merely one way that feedback might be administered in indicating, in routine fashion, one area of possible reporting weakness.

In the example, the information available is sufficient to cause some questions. Assume that a mean of 85.00 with standard deviation of 4.00 (indicates a range of marks from 73.00 to 97.00 with 68% falling between 81 and 89) has been established the most desirable result. The marks currently used from unsatisfactory thru outstanding have been converted to numerical grades to indicate that captains of the Marine Corps are receiving slightly higher evaluations (87.50) than those desired. This, of itself, is not a problem, since standard scoring will bring it into line for comparison of reports with those of other reporting periods.

The captains of the 2nd Marine Division have received just about the average grade given to all captains of the Marine Corps. Significant information, though, centers about the large differences appearing in the average marks of the respective regiments. The 2nd regiment has received low marks while the 8th Regiment has received marks which are unusually high. The 6th and 10th Regiments have average marks which are generally close to those of the Division and of the Marine Corps.

The question that might occur to the Division staff at this time is: do the regiments reflect large differences in performance as such marks indicate they might? If so, then likely no further action would be considered. If not, it may be that some further

HQMC

FROM COMMANDANT OF THE MARINE CORPS
TO COMMANDING GENERAL, 2ND MARINE DIVISION, FLEET MARINE FORCE, CAMP LEJEUNE, NORTH CAROLINA

SUBJ OFFICER EVALUATION, REPORT OF CAPTAINS

1. THIS TABULATION INCLUDES ALL CAPTAIN REPORTS RECEIVED FROM MARINE CORPS UNITS DURING THE PERIOD 1 APRIL 1965 TO 30 SEPTEMBER 1965.

2. TABULATION OF ALL CAPTAIN REPORTS AND THOSE OF YOUR COMMAND

RANK	MC/MAJOR COMMAND INTERMED UNIT BASIC UNIT	RAW SCORE		STD SCORE	
		MEAN	STD DEV	MEAN	STD DEV
CAPT	MARINE CORPS	87.50	3.00	85.00	4.00
	2ND MAR DIV	88.00	2.80	85.31	3.65
	2ND REGT	85.00	3.25	82.64	4.07
	6TH REGT	86.50	3.08	83.72	3.81
	8TH REGT	92.50	2.00	89.90	3.00
	10TH REGT	88.00	2.80	85.31	3.65

G. E. JONES
BY DIRECTION

Example of Feedback to the Division

Figure 22

investigating would indicate where marking weakness could be occurring.

At the same time that a report like that in Figure 22 might be sent to the Division Commander, a report in the nature of Figure 23, page 84, would be sent to the commanding officer of the 8th Regiment (and all other Regiments). The information given to the commanding officer includes captains' average marks for the Marine Corps, the Division, the Regiment, and, in this case, for each of the units subordinate to the 8th Regiment.

HQMC

FROM COMMANDANT OF THE MARINE CORPS
TO COMMANDING OFFICER, 8TH MARINE REGIMENT, 2ND MARINE DIVISION, FLEET MARINE FORCE8 CAMP LEJEUNE, NORTH CAROLINA
VIA COMMANDING GENERAL, 2ND MARINE DIVISION

SUBJ OFFICER EVALUATION, REPORT OF CAPTAINS

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CAPT	MARINE CORPS	87.50	3.00	85.00	4.00
	2ND MAR DIV	88.00	2.80	85.31	3.65
	8TH REGT	92.50	2.00	89.90	3.00
	1ST BN	88.00	2.80	85.31	3.65
	2ND BN	88.00	2.80	85.31	3.65
	3RD BN	88.00	2.80	85.31	3.65
	HQ CO	96.50	1.00	92.20	2.10

G. E. JONES
BY DIRECTION

Example Concurrent Feedback to Regiments

Figure 23

Immediately, the Regimental Commander could observe that captains in his unit had received significantly higher markings on the whole than captains of the Division and of the Marine Corps. His first reaction would probably be to consider if the captains of his regiment really "stood out" as this would indicate. His next reaction would likely be to attempt to find out how the different battalion commanders of his regiment had marked their groups of captains.

The latter information is already in his hands. Reference to it shows that the battalion commanders, coincidentally, have each marked just above the Marine Corps average at an average grade of 88.00. The area to which the Regimental Commander would probably look more definitively would be to Headquarters Company which shows severely high marks. It may be that there is need for better calibration of the marking officers of Headquarters Company; on the other hand, the captains of that company may be truly outstanding and the Regimental Commander would determine that the high fitness reports are justified. At any rate, a possible area of weakness in marking officers has been immediately identified. It is not unlikely that, given the information, the marking officers would correct their calibrations for the next marking period.

The information contained in Figure 23 would also be sent to the battalion commanders, generally the last level of officer fitness report preparation. Each battalion commander could make the same comparisons between what other units have done and what he has done in marking effort. And he can do this in terms of groups of officers with whom he is personally familiar in most cases.

Certainly, the idea of feedback to the rater is not new. Likely, one of the greatest deterrents to using feedback has been the inability to cope with the large amount of arithmetic manipulation required to achieve it. No longer is that true; the computer has reduced that matter to an insignificant one.

And, to conclude in Colonel Arnold's words:

Perhaps the reason for lack of rater feedback in our system today is the fear that general knowledge of the actual distribution of scores would lead to a second order inflationary effect. By this I mean the raters might keep shifting their ratings to the top half of each newly publicized distribution. As fearful as it sounds, the resulting scores would contain relatively no more error than before. If we ignore this fear and set out on a determined program to educate the rater, the other extreme may be realized---valid ratings measured on a common ratio scale. The rater is the only operator I can think of....who has no way to obtain feedback on the job. A very big first step is needed to educate him in his bias.[12]

[12]Arnold, op. cit., p. 58.

CHAPTER VI

SOME CONCLUSIONS

If a ship at sea goes aground, is it likely the first serious questions would have to do with the vehicle? Or, is it more likely the first serious questions investigate the ability of the captain and his navigator? If a plane hits a mountain peak, which comes first: the thought of failure of the vehicle, or the thought of pilot error?

Personnel evaluation exists in an atmosphere of almost constant investigation, or analysis. But for some reason, contrary to ships aground and airplanes on mountain peaks, almost all questions have to do with the vehicle---the reporting form---and not with the pilot (marker) error.

This study has limited itself essentially to some analyses which would hope to make a more effective use of the present system of officer evaluation; it makes no concession to the frequently popular idea that only massive change of current report form can cause an improvement to the system.

The conclusions of this study are embraced in five major areas which have been discussed at length in the previous sections; a sixth area, the computer, which has appeared throughout the discussion; and a seventh matter newly suggested as a possibility for further study.

One particular, too, can be reaffirmed at the outset: the ultimate personnel evaluation system is unlikely to ever be a practical reality in the near or intermediate future.

Our system does not, in the end, exist for the purpose of making a 'perfect' evaluation of men although that would be a

nice by-product. Our system will have achieved adequate results if it can accomplish perfect comparison of individuals for whom it is designed---Marine Corps Officers.

It would seem that if a change for the better can be made, and particularly if it can be made without risk to the current standards, then it should be made.

With the foregoing thoughts in mind, our conclusions to this study are presented. It seems reasonable to hope that their implementation would result in a better comparison of the Marine Corps officer group without jeopardy to the standards of comparison now being achieved.

1. Training

If there is one area in which the problems of officer rating can be improved, it is in enhancing the marking officers' knowledge of the technical aspects of personnel evaluation. In the chronology of attempted improvements to the system, this should be first: training should be instigated.

It is important that training be undertaken at all levels. If an officer is not afforded the opportunity for such education in formal schooling, then he should be required to participate in some correspondence training effort. In fact, it should be a requirement that officers participate in one way or another at least once every five years.

To implement this suggestion would be to take a "giant step" toward elimination of personnel appraisal problems of the Marine Corps. The evidence is convincing beyond reasonable doubt, if there ever was any, that Marine Corps officers desire to give a maximum performance. The performance in personnel appraisal,

records show, may be less than maximum---not because the markers' desire has failed them, but because knowledge of the system, so easily taken for granted, may not have been complete.[1]

2. Feedback

In a sense, one part of the marker's education is a feedback of a composite of what all markers have done in evaluating their subordinates. Feedback to the marker should be implemented. This is likely one of the first matters which could be accomplished and it is likely to be one of the most productive steps that could be taken in efforts toward more realistic evaluation.

A limited example of the effect of feedback---although other variables helped to produce the more appropriate evaluations---is the results achieved after the 1959 survey. Recapitulation, or feedback, identified the suspected weakness; marker input became significantly more discriminatory after the results of the survey became known.

One way to exploit the desire of Marine Officers to give maximum performance is to let him know where his performance is less-than-desirable. Feedback is precisely the technique which will let the markers know that a less-than-desirable performance is being perpetrated in personnel evaluation.

[1]See, for example, Lieutenant Colonel W. L. Traynor (ed.), "Officer Markings Get Special Attention," Marine Corps Gazette, XLVIII (November, 1964), p. 6, which states in part: "Following the breakup of a recent officers' selection board, a general officer was overheard to say 'Now I can go back to my regular duties with a clear cut idea on how to mark officers' fitness reports'."

3. Board of Evaluation

A board of evaluation concept should be developed and tested. The committee concept discussed at length in Chapter V surely has much to offer the much-maligned, single-rater system.

The relevant information which could be assembled concerning the performance of the individual would be far greater than that which is now assembled.

To be sure, the details for the board of evaluation's operation would need long and serious study. And, with the inception of board evaluation, reporting may become more time-consuming---for the board members, not the reporting officer. Yet, mindful of the inherent responsibility of the Marine Corps to achieve perfect comparison of contemporary Marines, it is to be suggested that implementation of this conclusion would result in another "giant-step" toward that goal while using the present reporting vehicle at no-risk to current standards of reporting, evaluation, or comparison.

4. Standard Scoring

Existing records establish without doubt that some reporting seniors constantly mark higher than others, that some groups have a higher average of marks than others, and that the "average" mark varies from period to period. If marks were to be compared only within a particular group or during a particular time period these differences would be of little concern. But promotion boards are confronted with the task of selecting the "best qualified" using, as an indication of merit, fitness reports prepared by numerous reporting seniors and over a considerable period of

time. Direct comparison of scores awarded in such a manner is not meaningful. To expect a promotion board to mentally compensate for the several varying factors is unreasonable and unnecessary, when studied judgements concerning these idiosyncrasies can be applied with consistency to raw scores during computation of the standard scores.

Conversion of raw fitness report marks to standard scores allows direct comparison of one report with another, removing from board members the anguish of guessing at the value of fitness report marks prepared under varying conditions.

5. EDP

Certain facets of a Marine's record will probably never be so well understood that they can be quantified, but those matters that can be quantified, should be quantified. In producing a better starting point for the promotion board, the computer can significantly reduce the number of unscientific evaluations of miniscule details associated with the review of fitness reports.

The computer can be committed against evaluation weakness immediately in some matters, not so soon in others. Current applications would include these, at least:

a. Numerical evaluation of fitness reports.

b. Standard scoring of reports.

c. Evaluation of entire records.

d. Preparation of marker feedback information.

Later, at least these would be added commitments:

a. Determination of marker validity.

b. Determination of report reliability and validity.

c. Determination of reliability of report items.

6. Rating Scale

The cues on the rating scale, which now range from "unsatisfactory" to "outstanding," should be changed to more useful ones. Probably no one can assess the damage which the persistent use of the current cues has caused.

It is to be admitted that the concern of Marine Corps officer appraisal is not whether the middle-man is called "average" or "above average" or "excellent," and some may say let 'well-enough' alone.

To be sure, the vital concern of Marine Corps officer appraisal is not to provide labels; it is to achieve correct comparison of one individual with another. But the evidence, some of which has been discussed in this study, is undeniably in favor of the thought that the cues of the current rating scale are inviting interpretations and judgments in such a way that the vital goal of appropriate comparison is not being achieved. It must certainly be valid to suspect that 'well-enough' is not good enough.

This paper makes no pretense to have made exhaustive study of rating scales.[2] We are, however, compelled to remark in passing that a prime concern in revamping the cues and the scale should be a concern for compatibility of the scale to "optical scanning" in association with EDP.[3]

[2]For an interesting study of rating scales in Marine Corps terms, see: Colonel Grant S. Baze, "A Rating Scale for Marine Non-Commissioned Officers of the First Three Pay Grades," (An Unpublished Thesis, Ohio State University, 1947).

[3]One possibility is the adaptation of the form to be used with the International Business Machine 1231 or 1232 Optical Mark Page Reader. For full discussion, see: IBM publication A-21-9012-1, "IBM 1231, 1232 Optical Mark Page Reader," (Rochester, Minnesota: 1963).

Although the current cues may have caused unassessable damage, the objections to their change in the past have had merit. Basically, those objections have centered about the concern for making comparisons of reports across rating scales. The merit of the objections came indirectly from the obvious practical impossibility of standard scoring all reports. Now, the computer has destroyed the merit of that objection.

7. Scoring Budget

It may be valid to suggest that the previous conclusions, if implemented, will adequately cope with the weaknesses of the reporting system which we have chosen to investigate. There is, however, one thought to be planted here for possible future consideration.

This thought would require no investigation unless there would persist a tendency toward inflated ratings and lack of discrimination. In the event investigation was necessary, it is noted that there may be some merit to installation of a system which would "budget" the total evaluation that a marking organization could use.

If, for example, a command had 100 officers of one rank, and if the mid-point numerical evaluation of the scale (new or current) were prescribed to be 85, then the total evaluation for the fitness reports to be submitted by the command might be limited to 8,500 (85 x 100). Such a technique would force a distribution and would tend to cause more perceptive evaluation and a better comparison of officers.

But this is a thought to be considered during another day when escalated effort to overcome continuing personnel evaluation problems might be required.

A Final Statement

To implement the conclusions of this study would possibly be costly in terms of human effort required for their execution. The equipment which may be required seems already to be available.

But, whatever the cost, is it worth the price? Should we be so concerned for personnel evaluation?

Halsey answers those questions as well as anyone. He writes:

> All this (personnel evaluation) takes much time and thought and continuous and conscientious attention to every detail. But accurate evaluation and analysis of the job performance of each person in the organization, executive and employee alike, is the only correct starting point for almost every phase of personnel administration...And a careful, conscientious program of employee merit rating---one which includes and gives proper weights to all evidence, both objective and subjective---is still the best method of obtaining this evaluation and analysis...A good job of merit rating is worth whatever it costs.[4]

Even so, it may seem that some of these conclusions are almost too unusual, maybe uncommon. But stop for a moment, if you will, to consider their role. Their intent is to evaluate the Marine Corps officer. He is, most frequently, an unusual man; his, is an uncommon organization.

[4]George D. Halsey, Handbook of Personnel Management, (New York: Harper and Brothers, 1953), p. 242.

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APPENDIX

APPENDIX A

COMPUTER PROGRAMS

Programs

The computer programs included as part of this study are presented primarily to illustrate the simplicity of adequate programs and the speed with which the computer can accomplish the type of arithmetic required for computation of means, standard deviations and standardized scores.

Two programs are included. The first one, called MEAN, computes the means and standard deviations of the raw scores awarded in each rank by individual reporting officers, and the over-all means and averages for each rank throughout the Marine Corps. The second program, STAND, converts raw fitness report scores to standardized scores.

With each program is included a description of its purpose, inputs not included in the section entitled Inputs to the Computer, a brief description of the program computations, a Fortran 63[1] listing of the program, a sample output, a flow diagram of the program and the time required to execute the program.

The times listed for each program are precise only for the particular program and equipment involved. Times for similar operations may be reduced by more efficient programming and faster equipment or may be increased by more ambitious outputs and less agile computers.

[1]Control Data Corporation, Fortran 63/Reference Manual, June, 1964.

The Computer

The primary equipment used was the Control Data Corporation 1604 computer located at the Computer Facility, U. S. Naval Postgraduate School, Monterey, California.

Definitions of Variables

The variables used and inputs required are, in a large part, common to both programs and so are defined in the next two sections rather than with each program.

Variable	Definition
FRE	Frequency of Observation (See Section B, 15A, of Figure 4, page 17)

Weight	Frequency of Observation
3	Daily Contact
2	Frequent Observation
1	Infrequent Observation

GDAV(L)	Mean value of raw marks assigned to L^{th} trait for a particular rank throughout the Marine Corps during the period considered.
GDAVE(L)	Mean value of raw marks assigned to L^{th} trait for a particular rank by a single marking officer during the period considered.
GDDV(L)	Standard deviation of the raw marks assigned to the L^{th} trait for a particular rank throughout the Marine Corps during the period considered.
GDDEV(L)	Standard deviation of raw marks assigned to the L^{th} trait for a particular mark by a single marking officer during the period considered.

Variable	Definition
IND	Identifies the type of data card being read, i.e., 0 - End of data cards for a particular reporting officer 1 - Raw fitness report marks 2 - Standardized report marks 9 - End of data deck
MO	Month the fitness report was completed (Section A5, Figure 4)
NMO	Duration of fitness report in months (Section A5, Figure 4)
RANK	Digit representing pay grade of the reportee (Section A1, Figure 4)
RPO	Service number of the reporting officer.
SER	Service number of the reportee.
YR	Year (last two digits) fitness report was completed (Section A5, Figure 4)

Digit	Pay Grade	Digit	Pay Grade
1	0-1	6	0-6
2	0-2	7	0-7
3	0-3	8	0-8
4	0-4	9	0-9
5	0-5		

Inputs to the Computer

Information from fitness reports is read into the computer on 80-column IBM punched cards. Data for one fitness report are transcribed to a punched card in the format shown below.

Card Column	Variable
1	IND
2	RANK
3-5	BLANK
6-11	SER
12-13	MO
14-15	YR
16-17	NMO
18-23	RPO
24	BLANK
25	FRE
26-69	GD(L) L = 1
28-29	GD(L) L = 2
30-69	GD(L) L= 3, 22
70-80	BLANK

Data cards must be in groups by reporting officer. Each such group is in order by the rank of the reportee.

A data card with a 'zero' in column one must follow the batch of fitness reports completed by each marking officer.

A data card with a 'nine' punched in column one must follow the last fitness report data card.

Program MEAN

This program computes the means and standard deviations of the raw scores assigned to each of the twenty-two traits on the fitness report. The means and standard deviations are computed and output by rank of reportee for each marking officer and for the entire Marine Corps. Computations reflect the weights assigned

to the varying duration and frequency of observation. The manner in which weights are assigned is explained in a subsequent paragraph headed Computation.

Input

The input for this program is the raw fitness report data on punched cards as described in the two preceding sections.

Computation

The duration of the report in months, NMO, is multiplied by the frequency of observation, FRE, to form the variable W. W is the weight assigned to the report. WS(L), the sum of the weights assigned to the L^{th} trait, allows consideration of "not observed" marks within a report as suggested on page 21. W(K,L) is the sum of all the Ws for the K^{th} rank (of reportee) and L^{th} trait assigned by an individual reporting officer, i.e., mark for trait one (L) assigned to majors (K) by a particular reporting officer.

Weights can be varied by changing the values assigned to NMO and FRE (see statement 3 in Figure 25, page 112). If no weighting is desired a value of one should be assigned to each.

The means and standard deviations are computed using the relationships described on page 60.

The means and standard deviations of each trait for each rank (of reportee) are output for each reporting officer prior to computing the marks for subsequent reporting officers. The weighted marks of all reports are accumulated through the individual computations and finally output as the Marine Corps-wide means and standard deviations for each trait and rank of reportee.

See Figure 25, page 111, for a Fortran 63[2] listing of this program.

[2] Ibid.

Computer Output

The outputs from this program are the means and standard deviations of each of the twenty-two traits on the current Marine Corps Officer fitness report, computed for each reportee rank (Warrant Officer, W-1, through Lieutenant Colonel). The means and standard deviations are printed to two decimal places and are organized to reflect individual reporting officer's results as well as the Marine Corps-wide results.

Figure 24, page 109, is a sample output of a portion of a reporting officer's efforts.

Figure 24, page 110, is a sample output of over-all Marine Corps means and standard deviations.

Five hundred fictitious fitness reports were processed by this program in one minute and twenty-three seconds.

Figure 26, page 114, is the flow chart for this program.

Program STAND

This program converts the raw fitness report scores to standardized scores. Each of the twenty-two traits on the fitness report is individually converted, then consolidated with the standardized scores of the other traits and output with identifying information (serial number of reportee and reporting officer, date completed, duration of observation, etc.) to form the full standardized report.

Input

The inputs to this program are the raw fitness report data on punched cards as described on pages 102 and 103 and the Marine Corps-wide means and standard deviations of each

trait for each rank of reportee--the output from program MEAN.

Input data cards are read in the following order:

First card with means of raw scores (see below for card format)

Second card with means of raw scores.

First card with standard deviations of raw scores.

Second card with standard deviations of raw scores.

Raw fitness reports.

There should be no blank cards or other separators between raw fitness report data cards. A card with a 'zero' punched in column one must follow the last raw fitness report card.

Data card format for the Marine Corps-wide mean of the raw scores of each trait and rank of reportee is:

Card Column	Variable
1	IND
2	RANK
6-9	GDAV(1)
10-13	GDAV(2)
.	.
.	.
.	.
46-49	GDAV(11)

Second Card

1	IND
2	RANK
6-9	GDAV(12)
10-13	GDAV(13)
.	.
.	.
.	.
46-49	GDDV(11)

Data card format for Marine Corps-wide standard deviations of raw scores for each trait for each rank of reportee is:

Card Column	Variable
1	IND
2	RANK
6-9	GDDV(1)
10-13	GDDV(2)
.	.
.	.
.	.
46-49	GDDV(11)
Second Card	
1	IND
2	RANK
6-9	GDDV(12)
10-13	GDDV(13)
.	.
.	.
.	.
46-49	GDDV(22)

Computation

The Marine Corps-wide means and standard deviations of the raw scores are combined with the raw scores of individual fitness reports to compute a $\bar{z}$ score as shown below and in Figure 28, page 118.

$$\bar{z} = \frac{GD(L) - GDAV(L)}{GDDV(L)}$$

The Ƶ score is then multiplied by the arbitrarily chosen standard deviation of the standard score (10) and added to the arbitrarily chosen mean (70) of the standard score to compute the standardized score for each trait and each fitness report as shown below and in Figure 28, page 118.

Standardized score = 70 + 10 * Ƶ

The mean and standard deviation of the standard scale can be modified at will by providing the desired values in statement 3000 of Figure 28, page 118.

The standardized score for a trait is output prior to computation of the standard score for the following trait.

Computer Output

The output from this program is a standardized fitness report for each raw report input.

The standardized report includes the serial number and rank of reportee, the serial number of the reporting officer, the month and year the report was completed, the duration of the report, the frequency of observation and, of course, standardized scores for each of the twenty-two traits of the fitness report.

Figure 27 is a sample output for this program.

Five hundred fictiitious fitness reports were standardized by this program in two minutes and fourteen seconds.

Flow Diagram

The flow diagram for this program is shown in Figure 29

MEAN AND STANDARD DEVIATION OF MARKS
AWARDED BY 0 40000

WARRANT OFFICER,W-1

TRAIT	MEAN	STD DEV
1	88.57	8.28
2	88.57	8.28
3	82.64	15.93
4	81.87	12.63
5	88.57	8.28
6	91.54	6.21
7	88.57	8.28
8	0	0
9	90.00	0
10	84.84	10.48
11	88.57	8.28
12	92.97	4.23
13	84.84	10.48
14	88.57	8.28
15	0	0
16	82.97	4.23
17	88.57	8.28
18	90.00	7.51
19	92.97	4.23
20	86.26	8.93
21	79.56	13.63
22	86.70	9.13

MEAN AND STANDARD DEVIATION OF MARKS
AWARDED BY 0 40000

WARRANT OFFICER,W-2

TRAIT	MEAN	STD DEV
1	86.76	6.22
2	86.76	6.22
3	84.80	10.03
4	77.75	8.45
5	86.76	6.22
6	87.75	5.85
7	86.76	6.22
8	0	0
9	90.00	0
10	78.73	8.07
11	86.76	6.22
12	90.88	2.68
13	78.73	8.07
14	86.76	6.22
15	0	0
16	80.88	2.68
17	86.76	6.22
18	89.90	4.21
19	90.88	2.68
20	81.86	5.65
21	72.84	8.62
22	82.75	6.92

Output from Program MEAN.

Figure 24

MARINE CORPS WIDE

MEAN AND STANDARD DEVIATION OF RAW SCORES

WARRANT OFFICER, W-1

TRAIT	MEAN	STD DEV
1	88.57	8.28
2	88.57	8.28
3	82.64	15.93
4	81.87	12.63
5	88.57	8.28
6	91.54	6.21
7	88.57	8.28
8	0	0
9	90.00	0
10	84.84	10.48
11	88.57	8.28
12	92.97	4.23
13	84.84	10.48
14	88.57	8.28
15	0	0
16	82.97	4.23
17	88.57	8.28
18	90.00	7.51
19	92.97	4.23
20	86.26	8.93
21	79.56	13.63
22	86.70	9.13

WARRANT OFFICER, W-2

TRAIT	MEAN	STD DEV
1	86.76	6.22
2	86.76	6.22
3	84.80	10.03
4	77.75	8.45
5	86.76	6.22
6	87.75	5.85
7	86.76	6.22
8	0	0
9	90.00	0
10	78.73	8.07
11	86.76	6.22
12	90.88	2.68
13	78.73	8.07
14	86.76	6.22
15	0	0
16	80.88	2.68
17	86.76	6.22
18	89.90	4.21
19	90.88	2.68
20	81.86	5.65
21	72.84	8.62
22	82.75	6.92

Figure 24 (continued)

```
      PROGRAM MEAN
      TYPE REAL NMO
      DIMENSION GDAVE(22),GDDEV(22),GD(22),WS(22)
      DIMENSION GDS(22),GDSS(22),GDAV(22),GDDV(22)
      DIMENSION GDSA(9,22),GDSSA(9,22),WSA(9,22)
      DO 98 K=1,9
      DO 98 L=1,22
      GDSA(K,L)=0.
      GDSSA(K,L)=0.0
      WSA(K,L)=0.0
   98 CONTINUE
  300 RAN=0.0
  842 X=0.0
   99 DO 100 L=1,22
      GDS(L)=0.0
      WS(L)=0.0
      GDSS(L)=0.
  100 CONTINUE
 1111 PRINT 1112
 1112 FORMAT(1H1////)
 1113 FORMAT(/5X,5HTRAIT,9X,4HMEAN,11X,7HSTD DEV)
    5 READ 1,IND,RANK,SER,MO,YR,NMO,RPO,FRE,(GD(L),L=1,22)
    1 FORMAT(I1,F1.0,3X,F6.0,3F2.0,F6.0,1X,F1.0,22F2.0)
      IF(RANK.EQ.0.0)843,844
  843 IF (RAN.EQ.0.0)5,93
  844 IF(RANK.EQ.RAN)800,777
  777 IF(X.EQ.0.0)700,93
  700 PRINT 91
   91 FORMAT(//,9X,36HMEAN AND STANDARD DEVIATION OF MARKS)
      PRINT 92,RPO
   92 FORMAT(18X,12HAWARDED BY 0,F6.0)
      RAN=RANK $ K=RANK
      GO TO (11,14,17,20,23,26,29,32,35)K
   11 PRINT 12
   12 FORMAT(//,20X,19HWARRANT OFFICER,W-1/)
      PRINT 1113
      GO TO 800
   14 PRINT 15
   15 FORMAT(//,20X,19HWARRANT OFFICER,W-2/)
      PRINT 1113
      GO TO 800
   17 PRINT 18
   18 FORMAT(//,20X,19HWARRANT OFFICER,W-3/)
      PRINT 1113
      GO TO 800
   20 PRINT 21
   21 FORMAT(//,20X,19HWARRANT OFFICER,W-4/)
      PRINT 1113
      GO TO 800
   23 PRINT 24
```

Fortran 63 Listing of Program MEAN

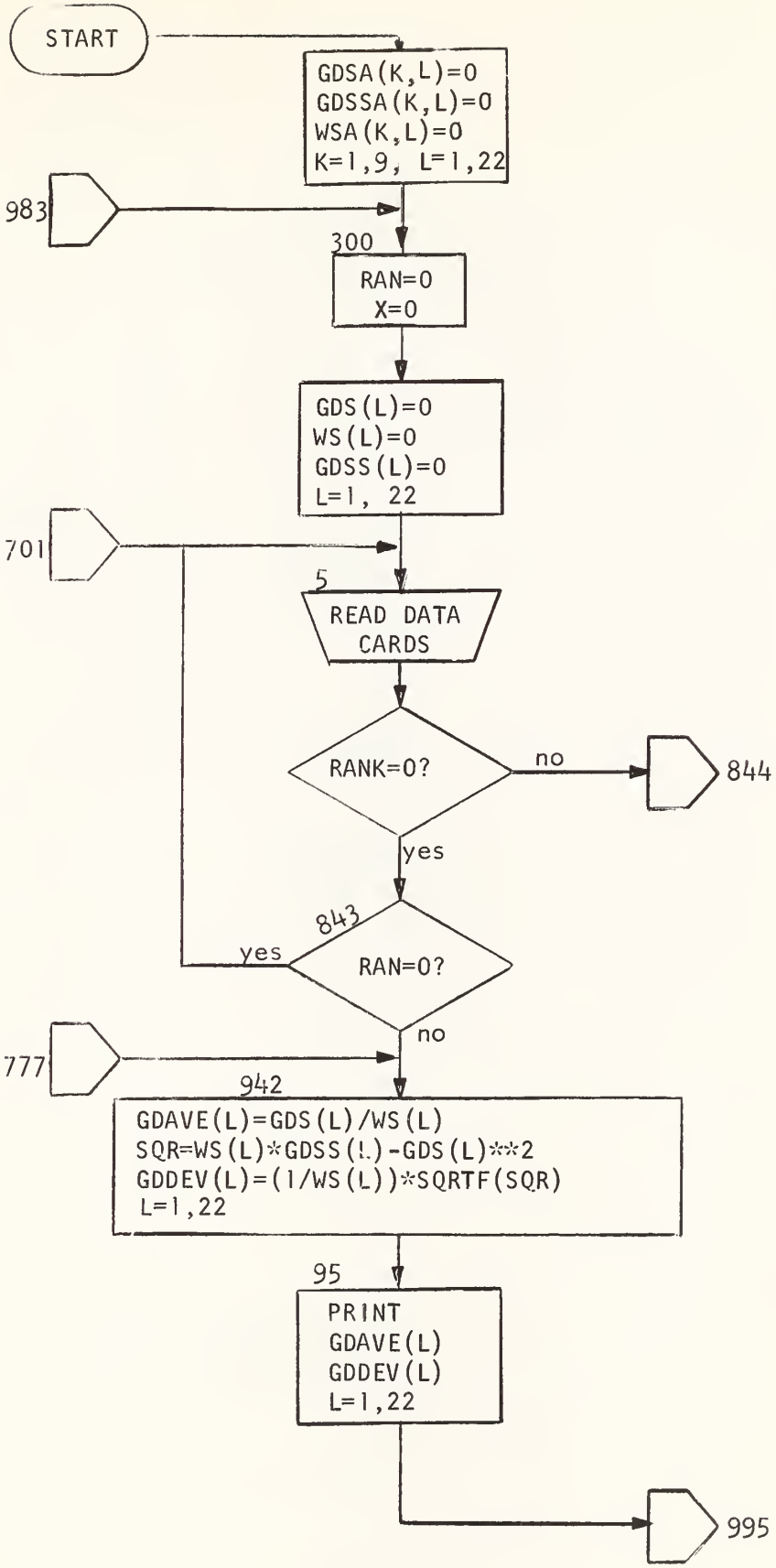
Figure 25

```
 24 FORMAT(//,20X,17HSECOND LIEUTENANT/)
    PRINT 1113
    GO TO 800
 26 PRINT 27
 27 FORMAT(//,20X,16HFIRST LIEUTENANT/)
    PRINT 1113
    GO TO 800
 29 PRINT 30
 30 FORMAT(//,22X,7HCAPTAIN/)
    PRINT 1113
    GO TO 800
 32 PRINT 33
 33 FORMAT(//,23X,5HMAJOR/)
    PRINT 1113
    GO TO 800
 35 PRINT 36
 36 FORMAT(//,20X,18HLIEUTENANT COLONEL/)
    PRINT 1113
800 DO 7 L=1,22
  8 IF(GD(L).EQ.0.0)7,3
  3 W=NMO*FRE
    WS(L)=W+WS(L)
    WSA(K,L)=WSA(K,L)+W
  4 SGD=GD(L)**2
    GDS(L)=GDS(L)+W*GD(L)
    GDSS(L)=GDSS(L)+W*SGD
    GDSA(K,L)=GDSA(K,L)+W*GD(L)
    GDSSA(K,L)=GDSSA(K,L)+W*SGD
  7 CONTINUE
701 X=X+1.0
    GO TO 5
 93 DO 94 N=1,22
    DO 942 L=1,22
    GDAVE(L)=GDS(L)/WS(L)
    SQR=WS(L)*GDSS(L)-GDS(L)**2
942 GDDEV(L)=(1./WS(L))*SQRTF(SQR)
    PRINT 95,N,GDAVE(N),GDDEV(N)
 95 FORMAT(7X,I2,9X,F6.2,10X,F6.2)
 94 CONTINUE
    X=0.0
    DO 943 L=1,22
    GDS(L) =0.0
    WS(L)=0.0
943 GDSS(L)=0.0
983 IF (IND.EQ.0)300,801
801 IF(IND.EQ.9)1000,920
920 X=0.0 $ GO TO 700
1000 PRINT 1199
1199 FORMAT(1H1//////////)
    PRINT 1001
```

Figure 25 (continued)

```
1001 FORMAT(//,16X,17HMARINE CORPS WIDE )
     PRINT 1002
1002 FORMAT(/4X,41HMEAN AND STANDARD DEVIATION OF RAW SCORES)
     DO 1999 K=1,9
     GO TO (61,62,63,64,65,66,67,68,69)K
  61 PRINT 71
  71 FORMAT(//,20X,19HWARRANT OFFICER,W-1/)
     PRINT 1113
     GO TO 211
  62 PRINT 72
  72 FORMAT(//,20X,19HWARRANT OFFICER,W-2/)
     PRINT 1113
     GO TO 211
  63 PRINT 73
  73 FORMAT(//,20X,19HWARRANT OFFICER,W-3/)
     PRINT 1113
     GO TO 211
  64 PRINT 74
  74 FORMAT(//,20X,19HWARRANT OFFICER,W-4/)
     PRINT 1113
     GO TO 211
  65 PRINT 75
  75 FORMAT(//,20X,17HSECOND LIEUTENANT/)
     PRINT 1113
     GO TO 211
  66 PRINT 76
  76 FORMAT(//,20X,16HFIRST LIEUTENANT/)
     PRINT 1113
     GO TO 211
  67 PRINT 77
  77 FORMAT(//,22X,7HCAPTAIN/)
     PRINT 1113
     GO TO 211
  68 PRINT 78
  78 FORMAT(//,23X,5HMAJOR/)
     PRINT 1113
     GO TO 211
  69 PRINT 79
  79 FORMAT(//,20X,18HLIEUTENANT COLONEL/)
     PRINT 1113
 211 DO 212 L=1,22
     GDAV(L)=GDSA(K,L)/WSA(K,L)
     SQ=WSA(K,L)*GDSSA(K,L)-GDSA(K,L)**2
     GDDV(L)=(1./WSA(K,L))*SQRTF(SQ)
 212 CONTINUE
     DO 213 L=1,22
     PRINT 95,L,GDAV(L),GDDV(L)
 213 CONTINUE
1999 CONTINUE
2000 END
```

Figure 25 (continued)



Flow Diagram for Program MEAN

Figure 26

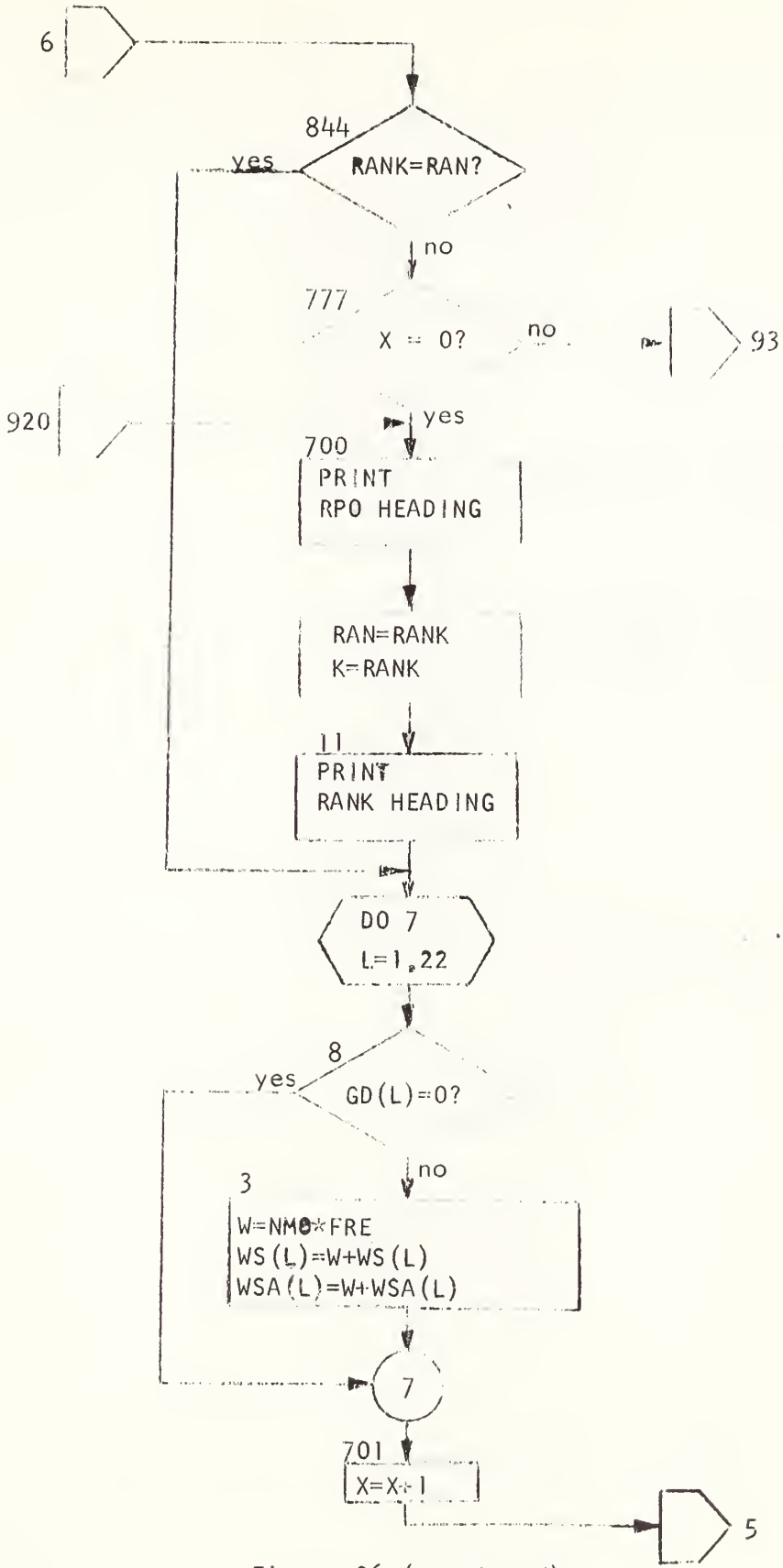


Figure 26 (continued)

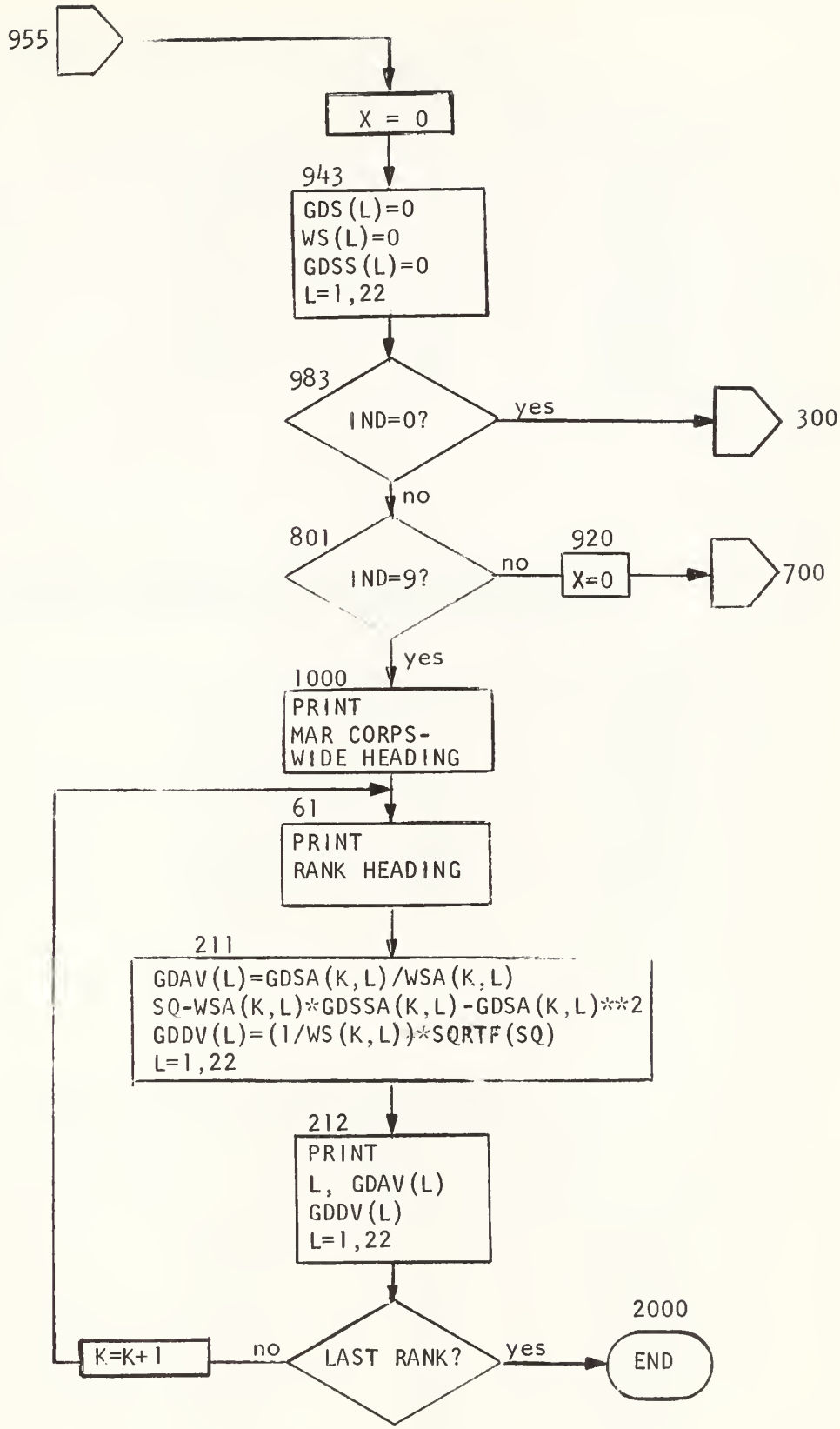


Figure 26 (continued)

STANDARDIZED SCORES ASSIGNED TO
OFFICER 90000 FOR PERIOD ENDING 1/60.
FREQUENCY OF OBSERVATION 3. MONTHS OBSERVED 6.

TRAIT	STANDARD SCORE	TRAIT	STANDARD SCORE
1	67.50	2	67.50
3	65.00	4	60.00
5	66.67	6	65.00
7	66.67	8	40.00
9	68.36	10	63.44
11	70.00	12	73.28
13	67.00	14	69.00
15	57.86	16	68.57
17	68.57	18	70.00
19	70.00	20	68.33
21	66.67	22	67.50

STANDARDIZED SCORES ASSIGNED TO
OFFICER 94000 FOR PERIOD ENDING 1/60.
FREQUENCY OF OBSERVATION 3. MONTHS OBSERVED 6.

TRAIT	STANDARD SCORE	TRAIT	STANDARD SCORE
1	72.50	2	72.50
3	70.00	4	70.00
5	70.00	6	68.33
7	70.00	8	40.00
9	68.36	10	70.00
11	73.28	12	73.28
13	71.00	14	71.00
15	57.86	16	71.14
17	58.29	18	58.29
19	55.00	20	70.00
21	70.00	22	70.00

STANDARDIZED SCORES ASSIGNED TO
OFFICER 90001 FOR PERIOD ENDING 1/60.
FREQUENCY OF OBSERVATION 3. MONTHS OBSERVED 6.

TRAIT	STANDARD SCORE	TRAIT	STANDARD SCORE
1	72.50	2	72.50
3	70.00	4	65.00
5	70.00	6	68.33
7	70.00	8	40.00
9	68.36	10	66.72
11	73.28	12	73.28
13	69.00	14	71.00
15	57.86	16	68.57
17	70.00	18	70.00
19	70.00	20	68.33
21	66.67	22	69.17

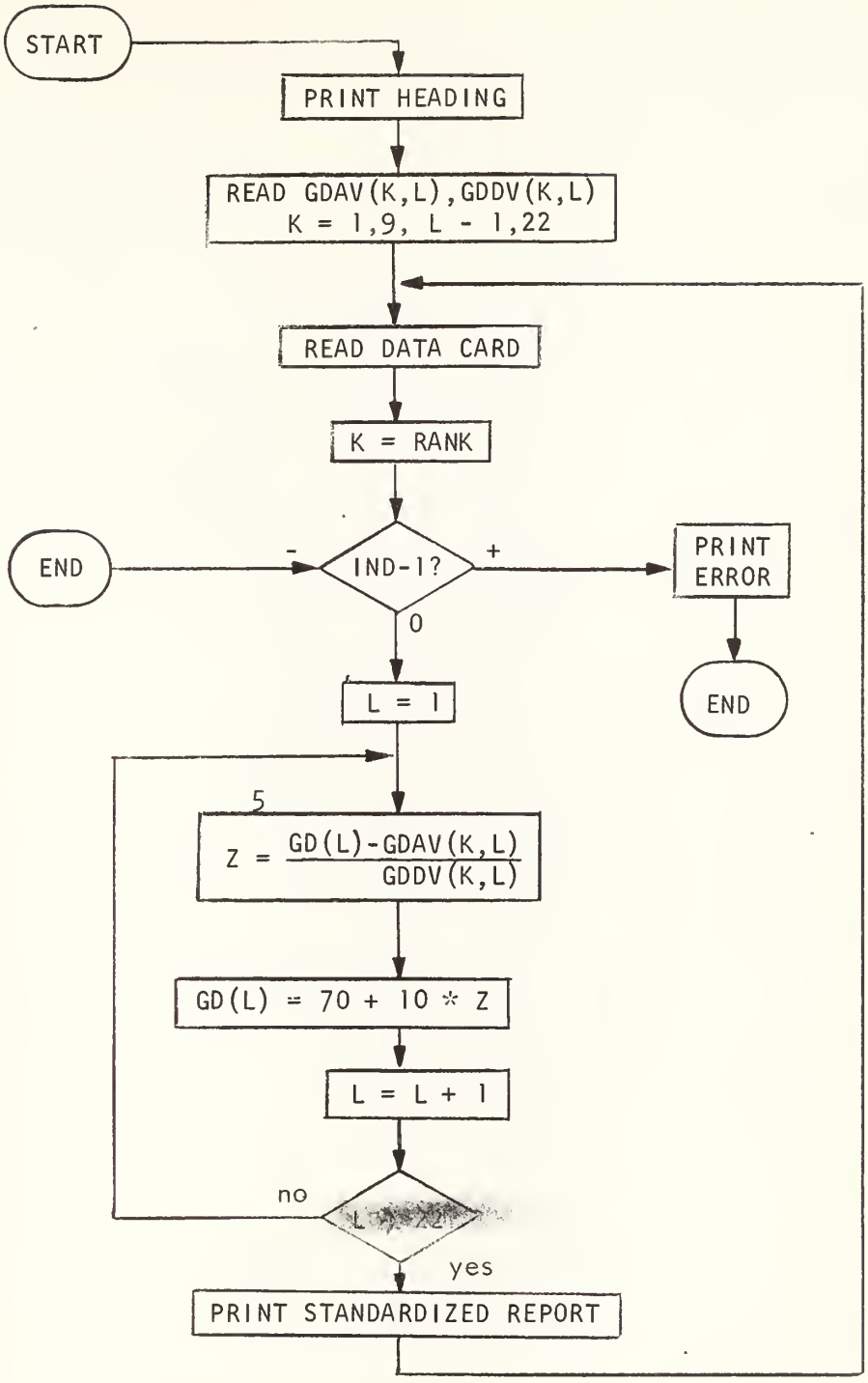
Output from Program STAND

Figure 27

```
      PROGRAM STAND
      DIMENSION GDAV(9,22),GDDV(9,22),GD(22)
      TYPE REAL NMO,MO
C   READ IN GRADE AVE (GDAV) AND STD DEV (GDDV)
    2 FORMAT(I1,4X,11F4.2)
   11 FORMAT (I1,4X,11F4.2)
      PRINT 203
  203 FORMAT(2H1  )
      DO 14 K=1,9
    1 READ 2,IND,(GDAV(K,L),L=1,11)
      READ 2,IND,(GDAV(K,L),L=12,22)
      READ 11,IND,(GDDV(K,L),L=1,11)
      READ 11, IND,(GDDV(K,L),L=12,22)
   14 CONTINUE
C   READ IN GRADES FROM ONE FITNESS REPORT
    3 READ 4,IND,RANK,SER,MO,YR,NMO,RPO,FRE,(GD(L),L=1,22)
    4 FORMAT(I1,F1.0,3X,F6.0,3F2.0,F6.0,1X,F1.0,22F2.0)
      L=1
      K=RANK
      IF(IND.EQ.0)1000,5
    5 Z=(GD(L)-GDAV(K,L))/GDDV(K,L)
      J=L+1
      Y=(GD(J)-GDAV(K,J))/GDDV(K,L)
 3000 GD(L)=70.+10.*Z
      GD(J)=70.+10.* Y
      L = L + 2
      IF(L.GT.22)200,5
  202 FORMAT(////)
  200 PRINT 202
      PRINT 201
  201 FORMAT(///,10X,31HSTANDARDIZED SCORES ASSIGNED TO )
      PRINT 8,SER,MO,YR
    8 FORMAT(8X,8HOFFICER ,F6.0,1X,17HFOR PERIOD ENDING,
     1F2.0,1H/,F2.0,1H.)
      PRINT 9,FRE,NMO
    9 FORMAT( 1X,25HFREQUENCY OF OBSERVATION ,F1.0,1H.,2X,
     116HMONTHS OBSERVED ,F2.0,1H.)
      PRINT 12
   12 FORMAT(//,5X,21HTRAIT  STANDARD SCORE  ,4X,
     121HTRAIT  STANDARD SCORE )
      DO 10 L=1,21,2
      J=L+1
      PRINT 13,L,GD(L),J,GD(J)
   13 FORMAT (7X,I2,10X,F5.2,9X,I2, 9X,F5.2)
   10 CONTINUE
      GO TO 3
 2000 PRINT 2001
 2001 FORMAT( 6X, '23H ERROR WRONG DATA DECK  )
 1000 END
```

Fortran 63 Listing of Program STAND

Figure 28



Flow Diagram for Program STAND

Figure 29

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A study of Marine Corps personnel apprai
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